

95th Congress }
2d Session }

COMMITTEE PRINT

ALASKA NATIONAL INTEREST LANDS
WORKSHOPS
(APPENDIX)

PRINTED AT THE REQUEST OF THE
COMMITTEE ON ENERGY AND
NATURAL RESOURCES
UNITED STATES SENATE



Publication No. 95-153

PART 2

JUNE 1978

Printed for the use of the
Committee on Energy and Natural Resources

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U.S. GOVERNMENT PRINTING OFFICE

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MEMORANDUM OF THE CHAIRMAN

To Members of the Senate Committee on Energy and Natural Resources:

The Alaska National Interest Lands legislation raises some of the most significant issues to confront the Congress in many years.

Over the past several years, the committee has conducted numerous hearings, briefings, workshops, and business meetings on these issues and the so-called Alaska (d) (2) legislation. In February of 1978, the committee majority and minority staff conducted a series of workshops in Anchorage, Alaska, designed to solicit the views of a wide variety of interest groups and agencies on a wide variety of resource issues. Representatives of numerous Federal agencies including the Department of the Interior, Heritage Conservation and Recreation Service, Bureau of Mines, Bureau of Land Management, Geological Survey, National Park Service, Fish and Wildlife Service, and the Forest Service were invited to participate. Similarly, several State agencies including the Alaska Department of Natural Resources, Alaska Department of Transportation, and Alaska Department of Fish and Game were represented. In addition, a number of interest groups—the Alaska Miners' Association, Alaska Loggers' Association, Alaska Oil and Gas Association, and the Alaska Professional Hunters Association participated in these workshops.

Finally, the various Native Corporations and the Joint Federal-State Land Use Planning Commission were invited to participate.

These participants were brought together to discuss a range of resource values and potential for each of the areas under consideration for Federal designation. These included scenic values, wildlife resources, renewable resources such as timber and fisheries, subsistence resources, the non-Federal lands issue, energy and mineral resources, and transportation/access concerns.

These workshop sessions pull together a wealth of information on Alaska's abundant resources. As the Congress continues to make decisions affecting the classification and designation of Federal lands in Alaska, this information will be a useful addition to the public debate. Therefore, I have directed that the record of the workshops be published as a committee print for the use of members of the committee, other Senators, and interested citizens.

Many of the maps and additional materials utilized at the workshops and submitted for the record could not be included because of reproduction and duplication limitations. All of this material, however, has been retained in the committee's official files.

I commend this committee print to anyone concerned with the (d) (2) lands issue.

HENRY M. JACKSON, *Chairman.*



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[Information provided for the record by the Alaska Department of Fish and Game regarding fisheries and fishery potential in southeast Alaska.]

02-001B (Rev. 10/76)

STATE
of ALASKA


MEMORANDUM

TO: ☐ Ron Somerville
Division of Game

DATE: March 14, 1978

FILE NO.

TELEPHONE NO.

FROM: 
E.J. Huizer
Deputy Commissioner
Dept. of Fish and Game

SUBJECT: Tongass Wilderness Area

SENATE COMMITTEES
DEPT. OF FISH AND GAME
APR 10 1978

Attached is a miscellany of Fishery information for several of the Tongass wilderness area proposals.

The information is from John Edgington and apparently was for the use of Senator Jackson's Committee during its Anchorage meeting.

Feel free to use it as you see fit.

RECEIVED
MAR 28 1978
DEPARTMENT OF FISH AND GAME

STATE
of ALASKA

MEMORANDUM

TO: Gary Gunstrom
Commercial Fisheries
Juneau

DATE : March 7, 1978

FROM: John Edgington
Land Use
Petersburg

SUBJECT: HR 39

Enclosed are the documents for consideration of stream management for HR 39. I have enclosed a letter for your or Dave's signature if you wish.

The plan was to have Ron Somerville take the data to Washington D. C.; you may want to phone him.

HISTORIC AND PRESENT WEIR SITES

Yakutat Forelands

Situk River 182-70-10

West Chichagof-Yakobi Islands

Klaz Bay 113-72-01

Admiralty Island

Windfall Creek	111-15-20
Pleasant Bay Creek	111-12-05
North Arm Hood Bay	112-72-12
South Arm Hood Bay	112-73-24

HIGH PRODUCTION COMMERCIAL FISHERIES STREAMS

IN THE PROPOSED

ADMIRALTY ISLAND WILDERNESS AREA

Chinook Salmon 500 or Less

111-17-10	King Salmon
-----------	-------------

Chum Salmon 6,000 or Greater

109-30-01	Woewodski Harbor
109-30-05	Eliza Harbor, West-Side

Chum Salmon 500 to 6,000 Escapement

110-22-001	Stream Not Named
110-22-002	Old Mans Creek Pybus B
110-22-006	Pybus Bay Head
110-22-009	Beautiful Creek
110-22-010	Donkey Creek W End
110-22-014	Cannery Cove Pybus B
110-23-010	Bowman Creek
110-23-019	Snug Cove Gambier B
111-12-005	Pleasant Bay Creek
111-15-024	Windfall Harbor W Side
111-15-026	Windfall Harbor NW Side
111-17-028	Upper Seymour Can Head
111-20-024	Point League Creek
112-17-030	Fishery Creek
112-19-015	Wilson, Cove SE
113-57-008	Stream Not Named
113-58-002	Hoonah Sound N Arm West
113-58-005	Hoonah Sound N Arm N Head
113-59-004	
113-72-001	Klag Bay Head

NOT ON
ADMIRALTY
ISLAND

Chum Salmon 500 to 6,000 Escapement cont.

113-72-002	Klag Bay East Side
113-73-004	Ford Arm SE Fork
113-73-006	Waterfall Cove Creek
113-73-008	Slocum Arm Flat Cove
113-73-010	Slocum Arm Head
113-73-012	Stream Not Named
113-81-002	Stream Not Named
113-81-007	Goulding Lake Head
113-81-008	Pinta Bay Head
113-95-004	Phonograph Creek, Lis. In.
113-96-002	Saltery River - Stag B
113-97-007	NW Lisianski Strait

WEST
YAKOBI -
CHICAGO OF
AREA

Coho Salmon 500 or Greater Escapement

109-30-25	Little Pybus Creek
111-15-20	Windfall Harbor
111-15-24	Windfall Harbor
111-16-40	Swan Cove Creek
111-17-10	King Salmon River
112-67-35	Hasselborg River
112-72-12	N. Arm Hood Bay
112-80-28	Chaik Bay
112-90-14	Whitewater Bay

Coho Salmon 100 to 500 Escapement

109-30-03	Eliza Harbor Streams
109-30-04	Eliza Harbor Streams
110-22-2	Pybus Bay Streams
110-22-3	Pybus Bay Streams
110-22-4	Pybus Bay Streams
110-22-6	Pybus Bay Streams
110-22-9	Pybus Bay Streams

Coho Salmon 100 to 500 Escapement cont.

110-22-10	Pybus Bay Streams
110-23-08	Gambier Bay Streams
111-12-05	Pleasant Bay
111-13-10	Mole Harbor
111-16-35	Swan Cove
111-41-05	Admiralty Creek
112-16-30	Wheeler Creek
112-19-10	Wilson Cove

Pink Salmon 50,000 or Greater Escapement

109-30-25	Little Pybus Creek
110-23-08	Johnston Creek
110-23-10	Bowman Creek
111-12-05	Pleasant Bay
111-13-10	Mole Harbor
111-17-10	King Salmon
112-16-30	Wheeler Creek

Pink Salmon 10,000 to 50,000 Escapement

109-30-03	Eliza Creek
109-30-13	W. Side Herring Bay
109-30-16	Tyee E. Fork
109-30-17	Tyee W. Fork
110-22-02	Old Man's
110-22-04	North Arm Pybus
110-22-06	Head Pybus
110-22-12	Donkey Bay Creek
110-23-19	Snug Cove
111-15-20	Windfall
111-15-30	Pack Creek
111-16-40	Swan Cove

Pink Salmon 10,000 to 50,000 Escapement cont.

112-17-12	Florence
112-17-30	Fishery
112-19-10	Wilson River
112-65-28	Greens Creek
112-67-35	Hasselborg
112-72-11	Hood Bay
112-72-12	Hood Bay
112-73-24	Hood Bay
112-80-28	Chaik Bay
112-90-14	Whitewater

Commercial
Fisheries Resources of the Proposed Admiralty Island Wilderness Area

Herring

Approximately 120,000 pounds of herring were harvested from Favorite Bay on the southwest side of Admiralty Island for the winter bait and food fishery in 1976. The Seymour Canal sac roe fishery on the eastern side of the island harvested 960,000 pounds of herring for 18.8 percent of the total sac roe harvest from Southeastern Alaska for the 1976-77 season. These fisheries were valued at an estimated \$151,000.00 to the fisherman. There are also several important herring wintering areas in the bays of the island. Favorite Bay, Hood Bay, Chaik Bay, White-water Bay, Pybus Bay, Gambier Bay, Eliza Harbor, and Seymour Canal are important areas that may support a future winter herring fishery. The most important herring spawning area is in Seymour Canal where there were 2.5 miles of spawn deposited in 1977. This area is located midway up Seymour Canal on the eastern shore. There are also smaller spawning areas in Hood, Gambier, and Pybus Bays.

PRE-EMERGENT SALMON FRY TEST STREAMS

West Chichagof-Yakobi Islands

Fick Cove Creek	113-57-01
Patterson Bay Creek	113-57-05
Hoonah Sound Creek	113-58-04
Sister Lake Creek	113-72-05
Waterfall Cove Creek	113-73-06
Lisianski River	113-95-06
Saltery River	113-96-02.

Admiralty Island

Eliza Creek	109-30-03
Little Pybus Creek	109-30-25
Donkey Bay Creek	110-22-12
Johnston Creek	110-23-08
Bowman Creek	110-23-10
Pleasant Bay Creek	111-12-05
Mole River	111-13-10
Windfall Creek	111-15-20
Pack Creek	111-15-30
Swan Cove	111-16-40
Lake Florence	112-17-25
Wilson River	112-19-10
Hood Bay North Arm Creek	112-72-12
Chaik Creek	112-80-28

Commercial Fisheries Resources of West Chichagof-Yakobi Island
Proposed Wilderness Area

Herring

Approximately 1,660,000 pounds of herring were taken from Lisianski Inlet, Hoonah Sound, and Portlock Harbor for the winter bait and food fishery in 1976 or about 13 percent of the total for Southeast Alaska. This product was worth about \$99,600.00 to the fisherman. Historically fisheries have been conducted in most of the bays with major efforts in Lisianski Strait, Stag Bay, Klag Bay, Khaz Bay, and Slocum Arm. There is currently no herring sac roe fishery within the boundary of the proposed area. There is, however, a major sac roe area a short distance to the south near Sitka. Several important herring spawning sites are within the proposed boundary. They are: Lisianski Inlet, Portlock Harbor, Ogden Pass, Surveyer Pass, Slocum Arm, and Khaz Bay.

HIGH PRODUCTION COMMERCIAL FISHERIES STREAMS

IN THE PROPOSED

WEST CHICHAGOF-YAKOBI ISLANDS WILDERNESS AREA

Chum Salmon 6,000 or Greater Escapement

113-56-02	Ushk Bay SW End
113-56-03	Ushk Bay W End
113-56-04	Ushk Bay N End
113-57-01	Fick Cove Head
113-57-04	Patterson Bay SW Head
113-57-05	Patterson Bay N Head
113-57-09	Patterson Bay S Head
113-58-02	Patterson Bay N Head
113-58-03	Granite Creek N Head
113-58-04	Hoonah Sound N Head
113-64-01	Deep Bay
113-72-05	Sister Lake SE Head
113-72-06	Sister Lake SE End
113-73-03	Ford Arm
113-73-04	Ford Arm
113-81-03	Goulding Lake
113-81-10	Black Bay Head
113-95-06	Lisianski Inlet
113-96-02	Stag Bay

Chum Salmon 500 to 6,000 Escapement

113-57-008	Stream Not Named
113-58-002	Hoonah Sound N Arm West
113-58-005	Hoonah Sound N Arm N Head
113-59-004	
113-72-001	Klag Bay Head
113-72-002	Klag Bay East Side
113-73-004	Ford Arm SE Fork
113-73-006	Waterfall Cove Creek
113-73-008	Slocum Arm Flat Cove
113-73-010	Slocum Arm Head
113-73-012	Stream Not Named
113-81-002	Stream Not Named
113-81-007	Goulding Lake Head
113-81-008	Pinta Bay Head
113-95-004	Phonograph Creek, Lis. In.
113-96-002	Saltery River - Stag B
113-97-007	NW Lisianski Strait

Coho Salmon 500 or Greater Escapement

113-72-02	Klag Bay
113-81-11	Black River
113-91-11	Elfendahl Creek
113-95-04	Phonograph Creek
113-95-06	Lisianski River
113-96-02	Saltery River

Coho Salmon 100-500 Escapement

113-73-06	Waterfall Creek
113-81-07	Goulding Lake System
113-81-10	Black Bay Creek
113-91-14	Falls Creek

Pink Salmon 50,000 or Greater Escapement

113-56-03	Ushk Bay
113-57-01	Fick Cove
113-57-05	Patterson Bay
113-58-03	Granite Creek
113-58-04	Hoonah Sound
113-64-01	Deep Bay
113-64-05	Fish Bay River
113-71-05	Sister Lake
113-73-03	Ford Arm
113-73-06	Waterfall Cove
113-81-03	Goulding Lake System
113-81-11	Black River
113-95-06	Lisianski River
113-96-02	Saltery River
114-23-70	Mud Bay

Pink Salmon 10,000 to 50,000 Escapement

113-55-11	Poison Cove
113-56-02	Ushk Bay
113-57-02	South Arm Fick Cove
113-57-04	Patterson Bay
113-57-09	South Arm Granite
113-58-02	Hoonah Sound
113-62-01	Salisbury Sound
113-63-02	Suloia Bay
113-63-09	Range Creek
113-71-04	Rust Creek
113-72-02	Klag Bay
113-73-04	East Ford Arm
113-73-08	Flat Cove
113-73-10	Slocum Arm

Pink Salmon 10,000 to 50,000 Escapement cont.

113-81-10	Black Bay
113-95-02	Meadow Creek
113-95-04	Phonograph Creek
113-95-07	Steelhead River

Sockeye Salmon 10,000 Escapement

113-93-01	Surge Bay
-----------	-----------

Sockeye Salmon 1,000 to 10,000 Escapement

113-61-03	Leo Lake
113-72-02	Klag Bay
113-72-03	Lake Anna
113-92-02	Takanis
113-94-02	Hoktaheen
113-95-04	Phonograph Creek

Commercial
Fisheries Resources of Proposed Misty Fiords Wilderness Area

Herring

Approximately 17.73 million pounds of herring were landed for sac roe and the winter bait and food fishery in Southeastern Alaska during 1976-77 with an approximate value to the fisherman of 1.3 million dollars. A total of 12.62 million pounds were landed as winter bait and food and 5.11 million pounds were landed for sac roe.

A significant portion of both the bait and food fisheries and sac roe fisheries are produced in those waters closely associated with the proposed wilderness area. The Behm Narrows and Fitzgibbon Cove areas located in the northern portion contributed 320,000 pounds and 80,000 pounds respectively to the bait and food fishery valued at about \$24,000.00 to the fisherman. This accounts for 3.2 percent of the total harvest for Southeastern Alaska. The Boca de Quadra area in the southwestern portion of the unit contributed 1,660,000 pounds to the sac roe fishery valued at an estimated \$250,000.00 or 32 percent of the total sac roe harvest for Southeast Alaska. That area near the mouth of Boca de Quadra from Kirk Point to Point Sykes received 12 linear miles of herring spawn representing approximately 33,390,000 spawning herring. In addition, there are small areas in Nakat Bay, Harry Bay, Tongass Island and Roe Point that receive herring spawn. Small wintering populations exist in most of the bays with a possible winter fishery in the Nakat Inlet, Fillmore Inlet area. The entire shoreline of the area is an important feeding area for adult and juvenile herring.

Commercial Fisheries Resources within the Proposed Misty Fiords
Wilderness Area

Commercial fishing efforts near the proposed area are restricted to the saltwater environment. Several species of commercial importance however are closely associated with the land, primarily the five species of salmon which spawn in the rivers and streams and herring which spawn on the beach. Commercial species which occur in the area include salmon, herring, shrimp, crab, flounder, pollock, and halibut, of which salmon and herring are most important with the others being of lesser significance in this area.

Salmon

Salmon harvesting is done with purse seines, gillnets and troll gear to harvest all five species of salmon in the waters bordering the proposed wilderness area. In 1977, fishermen caught 12.5 million pink salmon in Southeastern Alaska, 4.2 million of which were from District I. The proposed unit makes up the major portion of District I, which includes all waters east to the U.S. border from a line south of Caamano Point in western Behm Canal through Clarence Strait to the southern U.S. border. It is very difficult to break down the catch to smaller areas due to the mixed stock nature of the fishery. However, a very significant portion of about one-third of the total pink salmon harvest for Southeast Alaska did originate in the proposed wilderness area. The value of pink salmon caught in District I was approximately \$6,019,200.00 (4.18 million fish · 4 pounds average · \$.36 per pound) to the fisherman. All of the streams supporting a king salmon population in the Ketchikan area are within the proposed area. The nine-year average (1968-1976) king salmon troll catch in District I is 26,525 fish worth approximately \$686,528.00 (26,525 fish · 18 pounds average · \$1.44 per pound). Although the troll catch also represents mixed stocks to some degree, king stocks bound for the mainland streams are known to concentrate in higher percentages in the inland waters of District I. These

rivers also contribute to the area commercial gillnet and seine incidental king catches.

There are approximately 190 streams within the area that are recognized as being important for the spawning and migration of anadromous fish. The Fisheries Task Force for the Tongass Land Management Plan has identified 18 streams within the proposed area capable of greater than 50,000 pink salmon escapement and 19 with between 10,000 and 50,000 escapement. In addition there are: 13 streams with greater than 6,000 chum escapement, 13 with between 500 and 6,000 chum escapement, 2 with greater than 10,000 sockeye, 1 with between 1,000 and 10,000 sockeyes, 23 with greater than 500 coho, 8 with between 100 and 500 coho, 4 with between 500 and 5,000 kings and 7 with less than 500 king escapement. These streams are itemized in Table 1.

The effective management of this large and very important resource requires access to all the streams for accurate enumeration of returning adults, habitat protection and stream improvement projects, and the establishment and maintenance of a variety of study sites. There are six pre-emergent fry study areas currently within the area boundary, these involve nothing more than helicopter access but may change from year to year. There are also 7 weir sites within the area that have been used in past years. There are also sites on approximately 7 other streams that require access or facilities of some sort. In addition, as part of our enforcement effort a small number of tent sites are used each summer throughout the area to insure that regulations are obeyed. These sites are summarized in Table 2.

Table 1. High production commercial fisheries streams in the proposed Misty Fiords Wilderness Area.

Chinook Salmon	500 to 5,000 escapement
	101-30-30 Keta
	101-71-04 Chickamin
	101-75-30 Unuk
	101-55-20 Wilson-Blossom Rivers
Chinook Salmon	500 or less escapement
	101-30-60 Marten
	101-60-30 Big Goat
	101-60-15 Rudyerd
	101-71-26 Walker
	101-75-50 Klahine
	101-75-10 Grant
	101-75-05 Herman
Chum Salmon	6,000 or greater escapement
	101-11-101 Hidden Inlet
	101-15-019 Tombstone River
	101-30-030 Keta River
	101-30-060 Marten River
	101-55-020 Wilson River
	101-60-030 Big Goat Creek
	101-71-014 King Creek - Behm Canal
	101-71-016 Choca Creek
	101-75-005 Herman Creek
	101-75-010 Grant Creek
	101-75-015 Eulachon River
	101-75-080 Robinson Creek
Chum Salmon	500 to 6,000 escapement
	101-11-014 Harry Bay
	101-11-065 Willard Creek
	101-15-008 Sandfly Creek
	101-15-014 Halibut Bay - N. Head
	101-55-040 Blossom River
	101-55-060 Bakewell Creek
	101-70-068 creek-not-named
	101-71-008 Humpy Creek - Behm Canal
	101-71-025 Walker Cove - L. Head
	101-71-028 Walker Cove - SE Side
	101-71-050 Grace Creek
	101-71-063 Portage Creek
	101-75-050 Klahini River
	101-75-076 Saks Creek
	101-80-003 Cow Creek

Table 1. Continued

Coho Salmon	500 or greater escapement
101-11-33	Nakat Creek
101-11-37	1/2 mile head Nakat Inlet
101-11-74	Fillmore Inlet
101-11-75	Cannine Creek
101-11-79	Fillmore River
101-11-100	Hidden Inlet
101-15-08	Sandfly Bay
101-15-19	Tombstone Creek
101-30-30	Keta River
101-30-60	Marten Creek
101-30-75	Hugh Smith Creek
101-30-83	Humpback Creek
101-51-78	Princess Bay - Creek
101-55-20	Wilson River
101-55-40	Blossom River
101-60-15	Rudyerd River
101-60-30	Big Goat Creek
101-71-14	King Creek
101-71-26	Walker Cove
101-71-28	Walker Cove
101-71-63	Portage Creek
101-75-15	Eulachon River
101-75-30	Unuk River
101-80-03	Cow Creek
Coho Salmon	100 to 500 escapement
101-11-65	Willard Creek
101-41-12	Coho Cove
101-41-43	Black Creek
101-45-38	Salt Creek
101-51-67	Narrow Pass Creek
101-51-90	Ella Creek
101-55-09	Cabin Creek
101-55-60	Bakewell Creek
101-55-87	Skull Creek
101-75-05	Herman Creek
Pink Salmon	50,000 or greater escapement
101-11-65	Willard Creek
101-11-79	Fillmore Creek
101-11-101	Hidden Inlet
101-15-19	Tombstone River
101-23-19	Very Creek
101-30-30	Keta River
101-30-60	Marten River
101-30-83	Humpback
101-55-20	Wilson River
101-55-40	Blossom River
101-71-04	Chickamin River & Tributaries
101-71-28	Walker Cove - S. Side

Table 1. Continued.

Pink Salmon	50,000 or greater escapement (continued)
	101-71-63 Portage
	101-75-05 Herman
	101-75-10 Grant
	101-75-15 Eulachon
	101-75-30 Unuk - Tributaries
	101-75-50 Klahini
Pink Salmon	10,000 to 50,000 escapement
	101-11-14 Harry Bay - N. Head
	101-11-33 Nakat Creek
	101-11-37 1/2 mile head Nakat Inlet
	101-11-75 Canine Creek
	101-11-99 Cannery Creek
	101-15-08 Sandfly Creek
	101-15-14 Halibut Bay
	101-30-09 Weasel Cove
	101-30-12 Badger
	101-30-70 Red River
	101-30-89 Mink Arm Head
	101-30-95 Vixen
	101-55-09 Cabin Creek
	101-55-60 Bakewell Head
	101-60-09 Nooya Creek
	101-60-25 Boulder
	101-60-30 Big Goat
	101-75-76 Sacs
	101-75-80 Robinson
	101-80-03 Cow Creek
Sockeye Salmon	10,000 or greater escapement
	101-00-39 Nakat Lake
	101-30-75 Sockeye Creek
Sockeye Salmon	1,000 to 10,000 escapement
	101-51-06 Checats

Table 2. Commercial fisheries research study areas in the proposed Misty Fiords Wilderness Area.

101-30-30	Keta River	Proposed mine study site
101-30-45	(no name)	Proposed mine study site
101-30-75	Hugh Smith Lake	Old hatchery site, sockeye research, weir site in early 1970's
101-30-83	Humpback Creek	Pre-emergent fry sampling, outmigrant study area
101-55-09	Cabin Creek	Pre-emergent fry sampling, outmigrant study area, previous weir site
101-55-20	Wilson River	Pre-emergent fry sampling, proposed mine study area
101-55-55	Wolverine Creek	Proposed mine study area
101-55-73	Bakewell River	Ladder, coho, sockeye enhancement project
101-60-30	Big Goat	Weir site 1950's, past pre-emergent area
101-74-04	Chickamin River	Weir site, king salmon study and enhancement area
101-71-63	Portage Creek	Pre-emergent fry sampling
101-75-05	Herman Creek	Pre-emergent fry sampling weir site, outmigrant fry study area
101-75-15	Eulachon River	Pre-emergent fry sampling
101-75-30	Unuk River	King salmon enhancement site

Commercial fisheries values of the proposed Karta River
Wilderness Area

The Karta River, Alaska Department of Fish and Game Number 102-60-87, is an important producer of fish or the commercial fishery with all species of Pacific salmon except kings. Pinks and chum generally spawn below Salmon and Karta Lakes and coho and sockeye spawning in the lake tributaries and between lakes. Salmon and Karta Lakes are also utilized by rearing sockeye and coho.

The system is classified as: a Category I chum salmon stream with greater than 6,000 escapement, a Category I coho salmon stream with greater than 500 escapement, a Category I pink salmon stream with greater than 50,000 escapement, and a Category 2 sockeye stream with escapements between 1,000 and 10,000 adults, by the multi-agency Tongass Land Management Fisheries Task Force. Historic peak escapements counts range from 1,000 to 250,000 fish. If we assume that peak escapement counts represent one-half of the total escapement, the counts would correspond to a total escapement range of 2,000 to 500,000 fish. The average annual escapement for the 1963-1975 period is 75,600 with a range of 6,000 to 272,000 fish. Experience has shown that we harvest about one-third of the returning pinks and chums in the commercial fishery. Using the current price of approximately \$.60 per pound and 3.5 pounds per fish we can show an annual value to the fisherman of \$79,380.00 (37,800 fish \cdot 3.5 pounds \cdot \$.60 per pound). Good escapement data for sockeye and coho is lacking, however, we can calculate the potential numbers of these fish the stream could produce. There are 1,570 acres of sockeye rearing area available that should have the ability to produce 22 adults per acre. One-third of the 34,540 adults would be available to harvest with an annual potential value to the fisherman of \$50,950.00 (11,513 fish \cdot 5.9 pounds \cdot \$.75 per pound). There are also 1620 acres of mixed stream and lake rearing areas for coho that should be able to produce 12,891 adults to the catch with an annual value to the fisherman of \$96,683.00 (12,891 fish \cdot 7.5 pounds \cdot \$1.00 per pound). This indicates a total annual value to the fisherman of \$227,023.00 for this

stream.

The unit boundary also includes Black Bear Lake in the western portion that does not have any current commercial fisheries values. The saltwater shoreline portion of the unit encompasses no important herring fishery on spawning areas or associated saltwater fisheries for other species.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

JAY S. HAMMOND, GOVERNOR

SUBPOST BUILDING - JUNEAU 99801

February 22, 1978

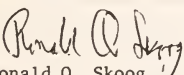
The Honorable Henry M. Jackson
 Chairman
 Committee on Energy and Natural Resources
 United States Senate
 Washington, D. C. 20501

Dear Senator Jackson:

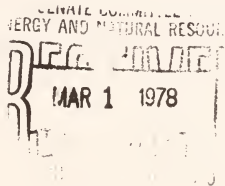
On February 13, members of my staff testified before your Committee in Anchorage concerning fisheries values on (d)(2) lands in Southeastern Alaska. Due to the interest in Admiralty Island, little time remained for adequate testimony on several other areas of concern in Southeastern Alaska. I would like to submit the enclosed additional material for the record.

I appreciate the opportunity provided my staff to testify before the Committee, and hope the enclosed information is useful in your deliberations.

Sincerely,


 Ronald O. Skoog
 Commissioner

Enclosure



In 1972, the staff of the Division of Sport Fish identified what they felt were the most outstanding recreational fishing waters in southeastern Alaska. This list of waters included eighteen separate systems. All of these systems were subsequently recommended to the U.S. Forest Service by the Alaska Department of Fish and Game for study as wilderness areas. Several of these systems are included on lands affected by the D-2 proposals in southeastern Alaska.

These systems, which we consider to have outstanding fishery values, are: Situk River, Kanalku Lake and Hasselborg-Thayer Lakes (included in Admiralty proposal), Goulding River and Lakes (included in W. Chichagof proposal), Castle River, Petersburg Creek and Duncan Salt Chuck (included in Duncan Canal proposal), Karta System, Mud Bay Creek (included in Idaho Inlet-Mud Bay proposal), Kadake Creek, Pavlof System, Salmon Bay system, Sarkar Lakes and Sweetwater-Honker Divide.

For each of these systems we have recommended that they be managed for dispersed recreation in a wilderness state. However, we very strongly recommend that established access via plane, boat and trail be allowed to continue. In addition, we recommend that the U.S. Forest Service recreational cabins in these areas be allowed to remain.

For your information I have attached a brief résumé of the fishery values for each of these systems.

Situk River (182-70-010)

This river system is in the Chatham Forest Service District on the Yakutat mainland (map reference Yakutat C-4, B-5, C-5) and is approximately 20 miles long with an average width of 80 feet and an average depth of 2-3 feet. The origins include Redfield Lake, Mountain Lake, Situk Lake, and small mountain lakes.

Fish species present in the system include king salmon, silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, rainbow trout, and Dolly Varden.

Currently, red salmon are the most abundant of the five species of Pacific salmon (more than 40,000 counted by Dinneford, 1975) followed by pink, king, silver, and chum salmon respectively. The system supports excellent runs of steelhead and Dolly Varden, and rarely cutthroat trout. Resident rainbow trout are available in the lakes and the river.

There are three Forest Service cabins in the area which were used for approximately 2,900 visitor-days in 1975.

Creel censuses conducted along the river in 1975 indicated that 93 angler days were expended in landing 290 steelhead trout during the spring run, and 399 angler days were expended in landing 119 king salmon

and 58 silver salmon in June and July. These were limited creel census efforts made primarily to ascertain the effects of regulation changes. Eleven subsistence use permits issued to local residents produced catches of 27 king salmon, 510 red salmon, and 40 silver salmon.

The lower river provides excellent opportunities for float trips through an area of abundant wildlife, and scenic wilderness.

Mud Bay Creek (114-23-070)

This system is located in the Chatham Forest Service District on the north end of Chichagof Island (map reference Juneau A-6). Otter Lake drains into the main system via one of the shorter tributaries.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, and Dolly Varden utilize the spawning and rearing area within this system. Pink and chum salmon are periodically abundant with high pink salmon escapements on odd years and Otter Lake reportedly receives runs of red salmon and cutthroat trout. Dolly Varden are abundant throughout the system with two to three pounders being common.

There are no Forest Service cabins in the area, but the outstanding fishing opportunities and exceptional scenic beauty of the area point to increasing recreational use.

Pavlof Harbor System (112-50-010)

This system is located in the Chatham Forest Service District on Chichagof Island, Freshwater Bay (map reference Sitka, D-4) and includes the Pavlof River system draining into Pavlof Lake which in turn drains into Pavlof Harbor.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout and Dolly Varden are present in certain portions of the system.

Silver salmon and red salmon are fairly abundant with important spawning and rearing areas throughout the main river and tributaries above the lake. Pink salmon are periodically abundant in the lower portions of the system with some use by chum salmon. Healthy populations of cutthroat trout and Dolly Varden are established in the lake and also use the upper portions of the system as rearing habitat.

There are no Forest Service cabins in the vicinity, but the system offers excellent opportunities for sport fishing, deer hunting, camping, hiking, and canoeing. The high productivity and scenic beauty of the area are likely to be affected by the current and future logging activities throughout the area.

Hasselborg - Thayer Systems (112-17-050 & 112-67-035)

This complex of lakes and streams is located in the central area of Admiralty Island (map reference Sitka G-1, C-2, and D-1) and consists of ten lakes and interconnecting streams. These lakes include Thayer, Hasselborg, McKinney, Distin, Guerin, Davidson, Beaver, Alexander, Jim's and Freshwater lakes.

Cutthroat trout, Dolly Varden, and Kokanee are abundant in most of the lakes and sport fishing opportunities are excellent. Although the two major streams, Hasselborg River (stream #112-67-035) and Thayer Creek (stream #112-17-050), have barrier falls within a mile of the intertidal areas they both support salmon runs. Hasselborg River has been identified by the Commercial Fish Division as a Category 1 silver salmon system with escapements exceeding 500 adults, a Category 2 pink salmon stream with escapements within the range of 10,000 to 50,000 adults, and a Category 2 chum salmon stream with escapements within the range of 500 to 6,000 adults. Thayer Creek supports runs of pink and chum salmon.

There are seven Forest Service cabins in the area and according to Forest Service information four of these cabins received 3,500 visitor-days of use in 1975. There is also a commercial lodge on Thayer Lake. In addition, there are several trails connecting the various lakes, but unfortunately recent information indicates that the trails are in poor condition.

Kanalku Lake (112-67-060)

This lake is located in the Chatham Forest Service District east of Angoon on Admiralty Island (map reference Sitka, B-2). It is one of three lakes on Admiralty Island that is accessible to anadromous fish.

Silver salmon, red salmon, cutthroat trout, kokanee, and Dolly Varden are present in the lake. The populations of silver salmon, cutthroat trout, and kokanee appear to be in excellent condition, and the red salmon run is quite distinctive. The red salmon in this run are smaller than normal red salmon, and it is thought that this is the result of smaller fish being able to successfully negotiate a partial block at the outlet of the lake. A few thousand pink salmon and some chum salmon use the outlet stream as a spawning area.

The partial barrier also creates an excellent feeding area for brown bears, and there are several vantage points providing excellent opportunities for bear observation and photography.

There are no Forest Service cabins in the area, but camping, hunting, and fishing opportunities are excellent.

Goulding River and Lakes (113-81-003)

This system is located in the Chatham Forest Service District on West Chichigof Island draining into Goulding Harbor (map reference Sitka, D-7). The system consists of four lakes: #1, #2, #3 - Otter Lake, and #4 - Goulding Lake; and the interconnecting streams. Goulding River is the stream draining from Lake #1 into Goulding Harbor. There is a falls at the outlet of Lake #1 which is a barrier to the passage of anadromous fish, and another series of falls between Lakes #1 and #2 which are also barriers to fish passage. Periodically several thousand pink and/or chum salmon spawn below the lower falls.

All four lakes have excellent populations of cutthroat and Dolly Varden trout. Apparently these populations are the result of stocking by U.S. Forest Service personnel in the 1940's but specific information is unavailable.

There is one Forest Service cabin at Otter Lake which received 400 visitor days of use in 1975. Excellent sport fishing opportunities, deer hunting, camping, a potential canoe system, and the scenic beauty of the area indicate increasing recreational use in the years to come.

Castle River (106-43-021)

This river system is located in the Stikine Forest Service District on Kupreanof Island and drains into the Duncan Canal (map reference Petersburg, C-4, C-5).

Silver salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, and Dolly Varden trout utilize the system. Silver salmon are the most consistently abundant with runs of several thousand being reported. Pink and chum salmon are periodically abundant. Cutthroat and Dolly Varden trout are abundant throughout the year, and there is a large run of steelhead trout in the spring, and a smaller run in the fall.

This system receives a substantial amount of fishing pressure from the residents of Petersburg. There are two Forest Service cabins available and they received 600 visitor-days of use in the 1976 season.

In addition to the excellent silver salmon, cutthroat, and Dolly Varden fishing, the area is noted for its deer and waterfowl hunting.

Duncan Canal Salt Chuck (106-43-059)

This system is located in the Stikine Forest Service District at the head of Duncan Canal on Kupreanof Island (map reference Petersburg, D-4, D-5), and consists of stream #106-43-059 which drains into the Duncan Salt Chuck which in turn drains into Duncan Canal.

Silver salmon, pink salmon, chum salmon, cutthroat trout, Dolly Varden and possibly steelhead trout utilize the salt chuck and portions of the stream. Several thousand silver salmon and large numbers of cutthroat trout contribute to the excellent sport fishery at the salt chuck rapids.

There are three Forest Service cabins in the area and they received 800 visitor days of use during the 1975 season.

The area is also a major wildlife area with resident and migrant waterfowl, black bear, and wolves utilizing the system.

Petersburg Creek (106-44-060)

This system is located in the Stikine Forest Service District on Kupreanof Island near Petersburg and drains into the Wrangell Narrows (map reference Petersburg, D-4), and includes tributaries to Petersburg Lake and Petersburg Creek.

The Petersburg Creek weir has been in operation since 1971 primarily to obtain information on the life histories of steelhead and cutthroat trout, but weir operation has yielded information on the numbers of all fish species using the system. In the order of abundance the in-migrant fish species passing the weir are as follows: Dolly Varden, pink salmon, red salmon, chum salmon, silver salmon, cutthroat trout, and steelhead trout. Rainbow trout are also present in the lake.

There is one Forest Service cabin in the area, and it received over 1,000 visitor-days of use in 1975. Petersburg Lake and Creek are favorite fishing areas for Petersburg residents.

Kadak Creek (109-42-030)

This sytem is located in the Stikine Forest Service District on Kuiu Island and drains into Kadak Bay (map reference Port Alexander, C-1, D-1; Petersburg, D-6).

Silver salmon, pink salmon, chum salmon, steelhead trout, cutthroat trout, and Dolly Varden utilize this system. Pink salmon have been periodically the most abundant with runs exceeding 10,000. Chum and silver salmon runs are smaller. Dolly Varden are the most abundant of the trout, followed by cutthroat and steelhead.

There is one Forest Service cabin at Kadak Bay and it received 222 visitor-days of use in 1976. Sport fishing opportunities are excellent with the majority of use coming from residents of Kake which is nearby. There are also excellent waterfowl hunting opportunities in the bay near the mouth of the stream.

Sweetwater - Thorne Systems (106-30-035 & 102-70-058)

These two large and complex systems of lakes and streams are located on the northeast end of Prince of Wales Island in the Ketchikan Forest Service District (map reference Craig D-3, Petersburg A-3; and Craig C-3, C-2). The Sweetwater Lake system contains six major lakes and associated tributaries, and the Thorne system contains seven lake-stream systems.

Both systems are very productive and support significant populations of silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, rainbow trout, and Dolly Varden trout. Pink salmon runs in the lower portion of the Thorne system have periodically exceeded 10,000 spawners in recent years.

There are currently three cabins in the area and a large portion of the fishing pressure comes from people associated with nearby logging operations. The potentials for wilderness recreation and sport fishing are excellent and the systems are being considered for inclusion in a scenic rivers-wilderness-canoe area. Such a classification would agree quite well with the current use of the area, since it is already one of the most popular canoe systems in Southeast Alaska.

Sarkar Lake System (103-90-014)

This lake and stream system is located in the Ketchikan Forest Service District on the northwest side of Prince of Wales Island and includes several lakes and interconnecting streams and tributaries (map reference Craig D-4, Petersburg A-4).

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, and Dolly Varden have been reported in Sarkar, Finger, and Long lakes, and all of the above species except pink and chum salmon have been reported in the upper lakes.

There is one Forest Service cabin on the system, and it received 200 visitor-days of use during the 1975 season. Sport fishing and canoeing opportunities are excellent throughout this system; and when the existing road system in the area becomes available for public use, and the proposed link-up with the Marine Highway System is completed, recreational utilization of the entire system will undoubtedly increase.

Karta System (102-60-87)

This system is located on the east side of Prince of Wales Island in the Ketchikan Forest Service District and drains into Karta Bay (map reference Craig C-2, C-3). The system includes Andersen Lake and Creek, and McGilvery Creek which drains into Salmon Lake. Salmon Lake then drains into Karta (Little Salmon) Lake and into Karta Bay via the Karta River.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, rainbow trout, and Dolly Varden are abundant in various portions of the system. Pink and chum salmon are periodically abundant in the lower portions with escapements ranging from 1,000 to more than 10,000. The highest recorded escapement of pink salmon was over 100,000.

Both Andersen and McGilvery creeks support fair size runs of red and silver salmon with Andersen being noted as a silver stream and McGilvery as a red stream. Trout are abundant throughout the system with excellent spring and fall runs of steelhead in the Karta River. Andersen Lake does not support any anadromous species but does have resident populations of Dolly Varden and cutthroat trout.

There are three Forest Service cabins in the area, and they received 2,200 visitor-days of use in 1975. The high recreational use of the area and the substantial populations of the various fish species makes this one of the most important watersheds in Southeast Alaska.

[Discussion of fish and wildlife resources of Admiralty Island prepared by Robert R. Leedy, U.S. Fish and Wildlife Service.]

FISH AND WILDLIFE RESOURCES AND MANAGEMENT IMPLICATIONS FOR ADMIRALTY ISLAND

Admiralty Island is the most productive and least disturbed major island ecosystem remaining in Southeast Alaska. Although the island contains fewer vegetation types and species of animals than some regions of the state, it supports a wide variety of plant and animal communities related to a continuum of physiographic environments ranging from rich marine and estuarine zones to rocky mountain peaks. Admiralty is a diverse system of beach grasses, forest, muskeg, meadow, brush and alpine tundra blended together by transition zones and interspersed with numerous streams and lakes. Its most significant fish and wildlife resources include salmon, deer, brown/grizzly bear and the highest density of breeding bald eagles in North America.

FISH AND WILDLIFE

Fisheries

The fishery resources of Admiralty Island and nearby coastal waters are critical to existence of high populations of brown/grizzly bear and bald eagles on the island and are important to continued viability of commercial and subsistence fisheries in northern Southeast Alaska. Following a request by the U.S. Forest Service in 1962, the Alaska Department of Fish and Game forwarded recommendations for setting aside thirty key salmon producing watersheds in southeast Alaska as natural areas. This proposal was based on the State agency's comparative evaluation of watersheds for commercial fish values and associated values related to sport fishing, hunting for waterfowl and big game, production of fur, and general recreation. Ten of these streams were located on Admiralty Island, primarily on the east coast (Kirkness, 1962). No legislative protection exists for these areas, but their selection illustrates well the importance of Admiralty Island relative to the rest of Southeastern Alaska. Six to ten aquaculture opportunities, such as fish hatcheries, have been identified on the Island.

Salmon.—The Alaska Department of Fish and Game has classified 187 salmon streams on Admiralty Island. Potential production of 67 of the larger of these streams has been estimated to be well over 2 million fish annually. Twenty-two streams have average annual escapements in excess of 10,000 salmon. Location of these 22 major streams are shown on the accompanying map, and escapement data for the streams are presented in the accompanying table. Although all five species of Pacific salmon spawn on the island, these data pertain only to pink salmon, the most abundant species in Southeastern Alaska and the only one for which reliable data are available. Escapements during the last five years have ranged from a high of 789,525 salmon in 1972 to a low of 71,560 in 1976.

MAJOR SALMON STREAM ESCAPEMENTS—ADMIRALTY ISLAND, 1972-76

Name and No.	1972	1973	1974	1975	1976
Wheeler Creek, 112-16-30.....	4,000	40,000	2,000	28,000	1,000
Florence Creek, 112-17-25.....	6,100	500	50	1,000	(¹)
Greens Creek, 112-65-24.....	4,100	11,000	1,100	3,100	400
Hood Bay, 112-72-11.....	4,500	800	2,300	300	1,300
Hood Bay, 112-72-12.....	4,000	2,000	300	50	(²)
Weir Creek, 112-73-24.....	16,300	7,000	5,000	2,500	1,400
Chalk Bay Creek, 112-80-28.....	38,600	15,000	5,000	3,000	6,000
Whitewater Bay Creek, 112-90-14.....	21,000	14,000	6,000	2,500	1,500
Wilson River, 112-19-10.....	31,000	7,800	1,900	1,350	400
Johnston Creek, 110-23-08.....	78,000	39,000	68,000	11,500	15,000
Bowman Creek, 110-23-10.....	34,000	14,000	22,000	3,500	10,000
Donkey Bay Creek, 110-22-12.....	21,000	15,500	10,000	750	6,300
Eliza Creek, 109-30-03.....	18,000	45,000	4,000	1,400	1,400
Tyee East, 109-30-16.....	3,500	4,700	5,000	300	2,500
109-30-25.....	(²)	6,600	11,000	1,000	(²)
Pleasant Bay, 111-12-05.....	139,200	50,000	41,000	10,380	10,100
Mole River, 111-13-10.....	151,700	36,000	48,000	15,000	9,000
Windfall Creek, 111-15-20.....	36,325	3,000	35,000	1,830	800
Pack Creek, 111-15-30.....	35,650	5,200	16,500	1,000	1,110
Swan Cove Creek, 111-16-40.....	56,550	10,000	26,000	4,000	700
King Salmon Creek, 111-17-10.....	51,000	14,000	30,000	1,200	2,000
Admiralty Creek, 111-41-05.....	3,500	10,000	2,500	6,400	650
Total.....	789,525	348,400	342,650	100,060	71,560

¹ None seen.

² No survey.

Escapements to major streams have declined drastically in recent years, not only on Admiralty Island, but throughout the northern half of Southeastern Alaska. Reason for the decline is due partially to severe winter conditions during the winters of 1973 and 1974, but long-term effects of over-exploitation and past logging practices also are suspected to have been contributing factors. Preliminary escapement surveys for 1977 indicate that survival of the 1975 year-class pink salmon was good. The downward trend, at least on the odd-year cycle, will be reversed this year.

Records of the Alaska Department of Fish and Game indicate that harvest generally has declined for all species of salmon in the Admiralty area during the last 10 years. Days of open purse seine season have declined steadily in the Chatham District along western Admiralty as attempts have been made by the state to increase spawning stocks and escapement. The Chatham District was closed completely in 1975 and 1976. It should be noted that most of the salmon traditionally caught in the Chatham District have been intercepted as migrants going around the island rather than to it.

Herring.—Populations of herring in estuaries of Admiralty Island provide the major food supply for many species of fish and wildlife. Herring spawn at various locations around the island, but the major spawning grounds are in the areas of Seymour Canal, Hood Bay and Chaik Bay. Locations of known herring spawning areas are shown on the accompanying map. Spawning usually occurs during the month of April.

COMMERCIAL HERRING HARVEST FROM ADMIRALTY ISLAND ESTUARIES, 1971 TO JUNE 1977

Year	Estuary	Harvest in pounds
1971.....	Seymour Canal....	692, 000
1972.....	do.....	945, 200
1973.....	do.....	1, 012, 400
1974.....	Hood Bay.....	417, 800
	Seymour Canal....	1, 807, 600
Subtotal.....		2, 225, 400
1975.....	Hood Bay.....	405, 600
1976.....	Pybus Bay.....	40, 000
	Gambier Bay.....	20, 000
	Seymour Canal....	500, 000
Subtotal.....		560, 000
1977.....	Favorite Bay.....	123, 500
	Seymour Canal....	960, 000
Subtotal.....		1, 083, 500
Total harvest, 1971 to June 1977.....		6, 924, 010

Commercial harvest of herring from estuaries of Admiralty Island is controlled by the Alaska Department of Fish and Game. The accompanying table depicts

harvest levels from 1971 to June 1977. During this period, harvest fluctuated from a low of 405,600 pounds in 1975 to a high of 2,225,400 pounds in 1974. The majority of the catch was taken in the Seymour Canal area, but no harvest was allowed there during the 1975 season by the Alaska Department of Fish and Game. Total harvest of herring during the period 1971 through June 1977 was 6,924,100 pounds.

Most herring are sold as commercial bait, but increasing food market demand and limitations on take in major harvest areas during 1976-77 forced fishermen to move into smaller bays unfished in previous years. Juneau Cold Storage took 60 tons of a 100 ton limit of herring out of Favorite Bay near Angoon and caused villagers to be concerned for the welfare of herring stocks and feeder king salmon they attract during winter. Harvest in the bay was closed early due to public outcry and lack of sufficient data to justify specific limits on the take.

Herring populations fluctuate from year to year and must be managed on an annual basis. There are many factors that impact survival of any year-class of herring, but the most critical period is during the first six weeks of their life cycle. The physical and biological conditions during this period have major impacts on survival rates. For example, if the herring spawn is deposited at high tide, then eggs exposed during low tide are lost; the amount of plankton available for food in the estuaries is another controlling factor.

Sport Fish.—Over half of the lake acreage (15,000 acres) in the Chatham District occurs in conjunction with prime sport fishing streams on Admiralty Island. The Admiralty Lakes Area contains two-thirds of these. The Alaska Department of Fish and Game has identified one outstanding and over a dozen excellent sport fishery systems yielding cutthroat and trout, steelhead, dolly varden, and coho salmon. Additional salt water sportfish values are associated with winter king salmon at Angoon and summer commercial fisheries (Powers, 1972).

Bald Eagle

Admiralty Island supports the greatest concentration of nesting bald eagles in existence. The island has an average of over one eagle nest per mile of coastline; some areas have over 4 nests per mile. Over 900 nests are known along the 860 miles of convoluted coastline and a computer print-out of location of these nests produces a map of the island (see copy from Robards and Hodges, 1977). Approximately 40-45% of these nests ($456 \pm 5\%$) are active in any given year. Average annual production is about 1.2 birds per nest, or about 550 young per year.

Eagles require very large, old growth trees near the waterfront in which to build nests. A memorandum of understanding between the Fish and Wildlife Service and the U.S. Forest Service requires that no timber be cut within 330 feet of an eagle nest tree, but long term adequacy of this policy appears doubtful. More than 90 percent of nesting and perching habitat would be lost under this policy and timber within buffer zones could be cut as soon as a nest tree were destroyed by natural causes.

ADMIRALTY ISLAND, EAGLES NESTS



SHORELINE MILES	860
EAGLE NESTS	893
ONE INCH EQUALS	11.5 MI

In any areas that might be logged, a total beach fringe buffer zone would be the minimum acceptable answer for long term management of nesting and perching habitat. Over 95% of the nests could be protected by a one eighth mile strip with special buffer zones for the few nests outside the strip. In areas with suspected high windfall risk, the buffer zone should be as wide as necessary to be windfirm.

The eagle population of Admiralty Island would decrease without necessary stocks of fish. Primary source of food during nesting season is herring, augmented by cod, smelt and other species upon which young eagles thrive. Proper management of these species is vital for continued welfare of the eagles. Spawned-out salmon become an essential food item in the fall when recently fledged young birds are learning to forage for themselves. Perpetuation of spawning stocks in all current spawning streams will be necessary, and opportunities for management of fisheries should not be overlooked as a tool for management of eagles as well. Management of fisheries beyond Admiralty may be as important to eagles on the island as for populations elsewhere in Southeastern Alaska.

An area of ecological concern for Admiralty is difficult to define, but the late run of chum salmon on the Chilkat River near Haines is of outstanding importance to eagles throughout the northern panhandle. An average of 2,500 eagles, including many immatures, depends on this run which occurs annually from October to January along a five mile stretch of river.

Mining operations proposed near the concentration area will have to be carefully planned and monitored to insure there will be no impact on the run of chum salmon.

Southeast Alaska is one of the last strongholds for our national bird and Admiralty Island is the last large island in southeast Alaska without major logging or other commercial activity. The best protection for productive eagle habitat on Admiralty Island would be to designate the entire island as wilderness or otherwise give it status that would prohibit logging or other industrial use or concentrations of people.

Brown/Grizzly Bear

Admiralty Island is as well known for its high population of large brown/grizzly bears as it is for eagles. Several studies suggest a population of as many as 1,000 bears on Admiralty, or a density of about 1 bear per 1,000 acres of total land mass. Recent studies by the Alaska Department of Fish and Game show that drainages of Hood Bay, a fairly typical bay on southwest Admiralty, are inhabited by as many as 72 to 104 bears (Wood, 1976). There apparently is limited interchange into adjacent bays.

The only area of bear habitat known to compare with Admiralty Island in terms of population density is Kodiak Island. Total acreage of Kodiak is about 2.5 million acres, 1.8 million acres of which is within the existing Kodiak National Wildlife Refuge. Population of bears on the Refuge is about 2,000; population of bears off the Refuge is about 300. Thus, density of bears on the Refuge may be somewhat higher than for Admiralty, but density for the entire island of Kodiak would be equal or less. Refuge status will be lost on much of Kodiak after conveyance of lands to Natives pursuant to ANCSA.

Admiralty Island contributes approximately 5 percent of the legal statewide harvest of brown/grizzly bears and about 35 percent of the harvest in Southeast. The most productive areas of Admiralty have been Hook, Chiak, Gambier and Pybus Bays. Number of bears killed on Admiralty averaged 34 per year between 1964 and 1972 but rose to 52 between 1973 and 1976 (Johnson, 1976a). Although even recent levels of harvest are not suspected by the Alaska Department of Fish and Game to be impacting populations significantly, the State recognizes that quality of hunting has declined as hunter interactions become more common. The draft Alaska Wildlife Management Plan for Southeastern Alaska states, "increased demand for bear trophies is beginning to express itself through unsatisfactory hunter interactions in the field. Hunter crowding should be prevented by a permit system that will limit the number of hunters in the field at any one time. . . . With increases in hunting pressure, permit allocation may result in some loss of hunting opportunity. Permits might also result in loss of guiding opportunity including expansion into this area by guides not now hunting it."

Two areas are reserved on Admiralty Island for nonconsumptive use: Thayer Mountain and Pack Creek are closed to hunting. Access to Thayer Mountain is difficult and the area is rarely used. Observation towers at Pack Creek are used annually by about 50 persons, mostly Juneau residents, to view and photo-

graph bears. The existing reserve comprises only a portion of yearly bear range in the area and offers only limited protection from hunting. The Alaska Wildlife Management Plan recommends expansion of the sanctuary to include all drainages of Windfall Harbor.

Logging in southeast Alaska generally is done by clear-cutting; unfortunately, the effects of clear-cut logging on bear populations, or bear hunting, are poorly understood. Perenovich (1866) reported that effects were slight but felt his study was of too short duration to be conclusive. A known impact is the rather large number of bears destroyed in logging and support camps. Many of these conflicts would be avoidable if camps were chosen to avoid prime bear habitat and if refuse were disposed of properly. Regardless, quality of hunting is reduced when hunters are displaced from logged areas and crowd into more esthetically pleasing areas. Careful logging probably has fewer detrimental effects on bears than on fish, eagles and deer, but roads associated with most logging operations on Admiralty would destroy habitat, increase bear/people conflicts, and would lead to more hunting and/or restrictions on use.

Increased recreational use of Admiralty would almost certainly mean increased bear/recreationist encounters. Conflicts could be reduced somewhat by proper location of campsites, adequate disposal of garbage and routing of trails to avoid concentrations of bears. Seasonal closure of some areas to general recreation use should be considered. Education regarding habits of bears and recommended actions during encounters is essential, but carrying of firearms might be required under certain circumstances. Presently, most confrontations with bears are by local people who have met bears before or have been counseled properly as to how to react during an encounter. Increasing numbers of novice outdoorsmen concentrated by lodges and trails through otherwise inhospitable country would compound the problem; "a little knowledge is a dangerous thing," especially when applied to several hundred pounds of muscle, tooth and claw. Boat tours would reduce confrontation and are likely the best way for most people to visit the island under any circumstances.

Sitka Black-tailed Deer

Sitka black-tailed deer vary in abundance throughout most of Southeastern Alaska from Dixon Entrance north to Yakutat Bay. They are indigenous to the mainland and to islands of the Alexander Archipelago south of Lynn Canal and Icy Strait. Admiralty, Baronof and Chichagof Islands generally support more deer than any other area of Southeast. Examination of climatic records shows a strong indirect correlation between severity of winters and abundance of deer; weather appears to be the major factor controlling populations of deer in most areas. Deer on Admiralty and the other large northern islands appear to increase more rapidly from low levels than in other areas. Absence of wolves may be a contributing factor (Draft Alaska Wildlife Management Plans for Southeastern Alaska).

Deer historically have been the most important big game animal providing meat in Southeast Alaska. Even today, as many hunters may take deer for food as for sport. This is especially true in smaller villages where harvest of deer may exceed "legal" take of licensed hunters by as much as five times. Deer are known to provide a substantial portion of red meat protein for residents of Angoon, Hoonah, Pelican, Tenakee and Kake. Harvest tickets issued in Angoon for 1975 permitted the taking of 232 deer, but estimates of actual kill during that harsh winter are about 1,000. It is unlikely that even this harvest had significant adverse effects on the population beyond those anticipated from natural factors.

Regionally, the "ABC" Islands contributed about 85 percent of the recorded harvest in Southeast and about 65 percent of the harvest statewide. Admiralty provided the largest portion of the kill, followed by Chichagof and Baronof. Most urban hunters using Admiralty are from Juneau, Petersburg and Wrangell. The total number of hunters in the filed throughout all of Southeast has remained very close to 6,000 over the last 15 years (Johnson, 1976b).

Utilization of available food causes deer to be dependent upon different habitats in different seasons. Low-growing forbs are the most important plants used during most of the year. They are particularly abundant in alpine areas during summer, and are utilized during winter as long as they are available under the forest canopy. When forbs are covered by about 6 inches of snow, deer begin using woody plants, the most important of which is blueberry. Snow depth under timber exceeding 18 to 24 inches causes deer to concentrate on open beaches, utilizing dead beach grass, sedges and some kelp. These species will not maintain basic metabolism and mortality soon begins.

Clearcut logging probably has had more adverse impact on habitat of deer in Southeastern Alaska than any other human factor. Openings in dense forest can produce great amounts of deer food during initial stages of succession, but snow often appears to cover this vegetation at rates faster than in timber and make it unavailable to deer when needed most critically. In addition, it appears that coniferous regrowth forms a closed canopy in 15 to 20 years which shades out most species used as food for many decades.

It is highly recommended that any clearcuts on Admiralty be of less than 40 acres and separated by broad buffer strips; furthermore, a beach fringe of at least $\frac{1}{4}$ mile width or up to 500 feet elevation should be required to protect critical winter habitat. This fringe of timber is necessary for cover as well as for food during severe winters that may literally decimate populations of deer in some years. The fringe must be as wide as necessary to remain windfirm. Total prohibition of clearcut logging would be even more desirable.

[The following summary materials regarding individual proposed wilderness areas in southeastern Alaska were submitted by the Southeast Alaska Conservation Council (SEACC). The more detailed working file reports have been retained in the committee files.]

Southeast Alaska Conservation Council, Inc.

BOX 2778

JUNEAU, ALASKA 99803

907-586-6942
202-547-1144

Tebenkof Wilderness Area Proposal

SEACC

Size: 68,000 acres

Location: Central Kuiu Island, 45 miles southwest of Petersburg and 50 miles southeast of Sitka.

Wilderness Values:

(1) geography

Tebenkof Bay is an extremely large bay off of Chatham Strait which contains a number of small bays within it. Many small islands and rocks stud the waters of this system of bays. The arms of Kuiu Island that reach out into Tebenkof Bay are generally low and gentle in topography.

(2) fish

Over 20 streams in the Tebenkof Bay area are good salmon producers. Tebenkof Bay is considered to be the most important area for fish and wildlife on Kuiu Island. One of the streams in the area, Alecks Creek, is an outstanding sport fishing stream, with large steelhead runs, as well as cutthroat and Dolly Varden. Four species of salmon also run up the creek. Tebenkof Bay, with its good salmon production, is important to and well used by commercial fishermen. There are abundant shellfish and some crabs in the bay as well.

(3) wildlife

The area has a high black bear population, still controlled by mostly natural conditions. Some parts of the Tebenkof area are used intensively by bear. Deer and wolves are also present. Harbor seals and otter use the waters of the area. Tebenkof Bay is a key waterfowl habitat area. Trumpeter swans make use of Alecks Lake; some areas are used by seabirds and waterfowl for nesting and molting in summer or early fall; and many birds winter in the area. Bald eagles, grouse and great blue heron are among the many bird species present.

(4) recreation

Recreation potential is high because of the abundant shoreline, many anchorages and hunting and fishing opportunities. The setting is spectacular. At present, recreation consists almost entirely of hunting and fishing. There are several streams and lakes which provide excellent sport fishing for both trout and salmon, and the bay is noted for king and coho salmon fishing.

In addition to this, the area has great potential for such activities as canoeing, kayaking, diving, camping and photography.

Forest Service Plans: A logging road now extends into the Bay of Pillars area, just north of Tebenkof Bay. Although further development will be delayed during completion of the Tongass Land Use Management Plan (scheduled for completion in December, 1978), it is known that the Alaska Lumber and Pulp Company would like to expand their operations on North Kuiu Island into this area.

Many conservationists in Southeast Alaska, including the Stikine Conservation Society in Wrangell, have proposed that the Tebenkof Wilderness Area include Bay of Pillars as well as the southwestern arm of Kuiu Island, south of Tebenkof Bay. The Forest Service has received written public comments in favor of protecting the aesthetic and recreational values of Tebenkof Bay from such diverse organizations as the Petersburg Chamber of Commerce, the Petersburg Vessel Owners Association, the Petersburg and Stikine Conservation Societies, the Alaska Center for the Environment and Friends of the Earth.

Misty Fjords Wilderness Area Proposal

Size: 2.4 million acres

Location: The Misty Fjords area encompasses the southernmost portion of the mainland in Alaska, plus some additional island wilderness. It is approximately 25 miles east of Ketchikan.

Wilderness Values:

(1) geography

The Misty Fjords area includes all the representative landforms of southeast Alaska. It varies from the 5,000 - 8,000 foot peaks and glaciers of the Coastal Range to the gentle lowlands, richly cloaked in deep green forests and colorful muskegs. It includes wave-beaten rock and sand beaches and the quiet waterways of narrow fjords that cut deeply into the heart of the mountains. At its northern extreme it includes one of Southeast Alaska's few major rivers with headwaters in Canada, the Unuk River. On its south, it touches the US-Canadian border in Portland Canal. The Misty Fjords area straddles the highly scenic east Behm Canal, encompassing all of the watersheds draining into the east Behm Canal from Revillagigedo Island. All plant and animal species common to Southeast Alaska are represented here.

(2) fish

The Misty Fjords area is a major producer of all five species of Pacific salmon and is especially important for king salmon. Of the 2,000 salmon streams in Southeast Alaska, fewer than 20 support king salmon. The misty fjords area thus includes about one fourth of all king salmon streams in Southeast Alaska: the Unuk, Chickamin, Wilson, Blossom and Keta Rivers. Dolly Varden char, cutthroat, rainbow and steelhead trout abound in the streams and lakes. In the salt water are halibut, rock fish and red snapper. Crab are also easily caught in many parts of the area.

(3) wildlife

Misty Fjords includes all the wildlife species common to Southeast Alaska, plus animals, such as the moose (in the Unuk and Chickamin valleys), which rarely occur elsewhere in Southeast Alaska. The Revillagigedo Island side of Behm Canal is particularly populous with deer now. Mink, frequently seen throughout the area are still surprisingly unafraid of people. Hundreds of spotted harbor seals may be seen hauled out on rocks at low tide in many portions of the area. The great brown, or grizzly, bear abounds in the mainland, along with black bear, wolves and mountain goats. Birds that feed and nest in the Misty Fjords include ducks, geese, gulls, loons, shorebirds, grouse, ptarmigan, eagles, falcons, hawks and many songbirds.

(4) recreation

Misty Fjords is a highly popular recreation area among Ketchikan residents, other Southeast Alaskans and many residents of the Pacific Northwest. There are several air charter companies in Ketchikan who make frequent flights to some of the otherwise inaccessible mountain lakes. Boaters take use of the more accessible salt- and freshwater systems to view the spectacular cliff-lined fjords of Boca de Quadra, Smeaton Bay, Walker Cove, Rudyerd Bay and Hidden Inlet, and to enjoy the gentle beaches and estuarine flats. Hiking and beachcombing are particularly good in the southern portion of the area, between Foggy Bay and Cape Fox. Wildlife, scenery and solitude are high points of the Pearse Canal segment, along the southern boundary. River-running, fishing and hunting opportunities are well-known in the major river valleys, particularly the Unuk and Chickamin.

(5) scientific and historical values

In the Boca de Quadra area is found the northernmost stand of Pacific Silver Fir in the country. Four separate portions of the Boca de Quadra area are part of the Alaska Ecological Reserve System, being sizeable enough to make Boca de Quadra the largest contributor to the Ecological Reserve System in Southeast Alaska. Of geological importance is a recent major lava flow and active mineral springs in the Blue Lake and River area of the upper Unuk.

Misty Fjords is riddled with items of historical import, including numerous abandoned Indian villages, petroglyphs and pictographs, and Indian stone fish traps (some as large as 100 feet in diameter). The southern portion of the area includes the site of Fort Tongass, established soon after the Alaska purchase and occupied by over 50 men in 1868. The same site was also the location of the major Indian village of Tongass, which still had 173 people in 1880. Many of the totem poles now on display (or replicated) in Ketchikan and Seattle came from the Misty Fjords area, most notably the abandoned villages of Cape Fox and Tongass.

Minerals: There is no substantial mineral activity in the Misty Fjords area except for the current molybdenum prospecting by the U.S. Borax company in the area between Boca de Quadra and Smeaton Bay. U.S. Borax has filed over 200 unpatented claims in this area in the last few years.

Forest Service Plans:

While the Walker Cove-Rudyerd Bay portion of Misty Fjords has been labeled "Scenic Area" and "Wilderness Study Area" by the Forest Service for several years, the Forest Service has no comprehensive plan for the unit as a whole.

There have been proposals for developments such as mines and hydro-electric dams in the Misty Fjords area. The most serious of these is the potential molybdenum mine between Boca de Quadra and Smeaton Bay. The Forest Service released a final environmental impact

statement in July, 1977 proposing to allow bulk sampling of the minerals there by the U.S. Borax Company, involving a constructed road, docking facilities, shelters and heavy machinery. The impact statement is likely to be contested with an administrative appeal from conservation groups charging that it violates NEPA and Forest Service regulations. (The draft EIS was rated "Inadequate" by the Environmental Protection Agency.) Conservation groups believe that the bulk sampling as proposed (particularly the road) and an eventual mine may cause unacceptable degradation of the fishery and other wilderness resources.

The hydroelectric dam considered several years ago for Misty Fjords would be constructed at Lake Grace, on Revillagigedo Island. Conservationists in Alaska have opposed this project because more favorable alternative sites are available outside of Misty Fjords, because of concern for the fisheries and because Lake Grace is immediately across the Behm Canal from the spectacular and highly popular Walker Cove - Rudyerd Bay area. Recently, the Ketchikan City Council voted to seek construction of one of the alternative dam proposals instead of the Lake Grace project.

Admiralty Island Wilderness Area Proposal

Size: 1,030,000 acres

Location: Nine miles south of Juneau, bordered on the west by Chatham Strait, on the north by Lynn Canal, on the east by Stephens Passage and on the south by Frederick Sound.

Wilderness Values:

(1) geography

Admiralty is 96 miles long and averages 25 miles in width. It is a diverse system of forest, muskeg, beach grasses, meadows, brush and alpine tundra, interspersed with numerous streams and lakes. Admiralty Island is the last large island in Southeast Alaska without any major logging or other commercial activity. Approximately 23,000 acres have been selected on the west side of the island by the village of Angoon in accord with ANCSA. Limited habitation occurs elsewhere through special use permits administered by the Forest Service.

(2) fish

The potential production of the 67 classified salmon streams on Admiralty Island is estimated to be well over two million fish annually. The fishery resources of the island and nearby coastal waters are critical to the maintenance of high populations of bears and eagles.

(3) wildlife

Admiralty Island has more resident bald eagles than in all the rest of the United States. There is an average of over one eagle nest per mile of coastline. Some areas have over four nests per mile. A total of 893 nests has been recorded.

Admiralty Island is reputed worldwide to be one of the finest brown/grizzly bear areas in Alaska. Over half of the bears harvested in Southeastern Alaska are taken from Admiralty. Survival of these bears is commonly accepted to depend upon preservation of large tracts of natural habitat. Lowlands around the island supply significant amounts of high density winter range for Sitka deer and numerous bays and tidal flats provide important feeding and resting areas for migrant waterfowl.

Bears, eagles and deer are not the only animals that enjoy the island's richness. Humpback whales are often seen around the island, spouting, diving, feeding, living their underwater lives that man can only guess at. Deer, river otter, beaver, mink, weasel and marten inhabit the island and its forests.

(4) recreation

The island's proximity to Juneau and its famous wilderness values make it a central recreation attraction in Southeast Alaska. Hunters and fishermen come to Admiralty from all over the world. Boaters often float from Lake Alexander on the east, through a connected waterway of lakes and rivers, to an unparalleled estuarine ecosystem in Mitchel Bay, on the west. Many people enjoy boating around the island, stopping at its many bays and sloughs to camp, fish, view wildlife and practice photography.

Forest Service Plans: The Forest Service previously sold the prime timber on Admiralty Island to the Champion International Company under a 50-year timber contract, in callous disregard of the area's natural values. Luckily, the Champion International Company has withdrawn from the contract after legal delays brought on by local and national conservationists. The Forest Service is now revising its plans for the area.

Yakutat Forelands Wilderness Proposal

Size: 300,000 acres

Location: On the Gulf of Alaska, 20 miles southeast of Yakutat, bordered on the west by the Dangerous River, on the north by the Brabazon Range/Deception Hills D-1 land unit, and on the east by the Doame River.

Wilderness Values:

(1) geography

This proposal includes an exceptional sand beach with associated beach forests, estuaries and streams which parallel it. The area's width varies from $\frac{1}{2}$ to 4 miles, encompassing ecosystems which range from delta-estuarine lands, through muskegs and spruce-hemlock forests, to foothills and alpine tundra. Most of the area is low elevation foreland, and contrasts sharply with the 3,000 foot glaciated Brabazon Range which forms the northern boundary. The area shows vivid signs of its glacial history with numerous alpine lakes, waterfalls, cirques and hanging valleys. The Alsek River, the only major system to penetrate the Coastal Range between the Copper and Chilkat Rivers, is known for its rugged country, white water and spectacular scenery. Another major feature of the area, Dry Bay, is a gravely outwash plain developed from the Alsek River.

(2) fish

The Yakutat Forelands encompasses 7 major salmon and sport fish-producing streams. Depending on the time of year and the area, sports fishermen can fish for steelhead, all 5 salmon species, cutthroat trout, Dolly Varden char, northern pike and rainbow trout. Commercial fishing is the largest land use, with numerous fish camps and one processing plant utilizing the Alsek and East Alsek fisheries. The Pike Lakes area is a glacial refugium, unaffected by the most recent glaciation, retaining a northern pike population not duplicated in Southeast Alaska, along with several plant species unique in the region.

(3) wildlife

At least 28 mammal species are known to inhabit the area, including the rare glacier bear (or blue bear), believed to be a black bear which underwent certain evolutionary changes during the last glaciation in Southeast Alaska 8- 10,000 years ago. The glacier bear is officially listed as "threatened." The Yakutat Forelands is the center of distribution for this rare and local organism.

Moose, brown and black bear, mountain goat, wolf, coyote and furbearers are plentiful here. The Forelands is the primary moose habitat area in Southeast Alaska. Significant numbers of Stellar's sea lions and harbor seals inhabit the Alsek River, particularly during the salmon runs. It is reported that occasional whales enter the estuary of the Alsek. The Alsek River is an important migration corridor for many species of birds and mammals, the only such corridor for great distances in either direction.

Most of the trumpeter swan nesting in Southeast Alaska occurs in this area. Many thousands of snow geese and large numbers of whistling swans use the area for resting and staging. A flight path down the Alsek River is used by large numbers of many other species, including sandhill cranes and short-eared owls. The area is the southernmost major nesting area for the scarce and local Aleutian tern, as

well as for various shorebird species. Waterbirds use the extensive system of beach fringe, estuary, slough and freshwater marshes that are interspersed with brush and heavily timbered patches and stringers throughout the entire Forelands.

(4) recreation

After harsh winters in 1971 and 1972, the moose population has declined somewhat, but still offers hunters an excellent adventure. Bear hunting is also considered to be good. While the real potential of sport fishing in the Yakutat area has yet to be realized, it is expected to play an increasingly important role in the area's recreational use patterns. As access to the area increases, there will also be an increase in the number of general sightseers, photographers, hikers, backpackers and beachcombers.

Forest Service Plans: The Forest Service previously scheduled this area to produce timber through "independent" timber sales and the now-cancelled "Juneau Unit" 50-year timber sale. Presently they are developing revised plans for the area's future, scheduled to be completed late in 1978. The Forest Service has allowed a contract to be let for construction of a bridge across the Dangerous River (a road now exists to the river from Yakutat), even though they deny intentions to construct a road on the opposite shore. No environmental impact statement was filed before the contract to build an automobile bridge to a roadless area was let.

West Chichagof-Yakobi Island Wilderness Area Proposal

Size: 405,000 acres

Location: West Chichagof-Yakobi Island is just south of Glacier Bay National Monument, about 50 miles north of Sitka, 100 miles west of Juneau. West Chichagof is the western third of Chichagof Island, connected by an 8 mile neck of land to the rest of the island. Yakobi Island lies north of West Chichagof Island, across Lisianski Strait.

Wilderness Values:

(1) geography

The West Chichagof-Yakobi Island area contains a mixture of land-forms and environs suggestive of a much greater geographic range than actually exists. In its entirety the area contains, in one geographically compact unit, nearly as broad a spectrum of natural ecosystems as can be found throughout all of Southeast Alaska. The west coast is a 65-mile stretch of rocky headlands, reef-protected inlets and myriads of offshore islets, directly exposed to the Pacific Ocean. Behind this ocean front is a 35-mile island passage of quieter, protected waters, connected by streams to a network of inland lakes. Going a bit further east, to the island's heart, there arises a 3,000-6,000 foot mountain range which presents evidence of recent, extensive glaciation. To the north and east are Stag Bay and Lisianski Strait and Inlet, representing fjordland. The southeast coast typifies much of the inner island archipelago of Southeast Alaska, with wide streams, moist soils and stands of big spruce and hemlock. This area also contains rich tidal flats.

(2) wildlife

The long rugged coastline with its many tide pools contains a wealth of invertebrate marine life. Sea mammals include porpoise, whales, seals, sea lions and otters. Land mammals on West Chichagof are brown bear, Sitka black-tailed deer, mink, marten, squirrel and river otter. The area may well prove to be a future brown bear refuge. Bald eagles, many songbirds, ravens, crows, gulls, shorebirds and ptarmigan are found. Geese, ducks and swans cross the area during migration and some nest or winter there.

(3) fish

West Chichagof-Yakobi contains a large number of salmon streams, where all five western species of salmon spawn. Cutthroat and rainbow trout and Dolly Varden char are plentiful in the lakes and streams.

(4) recreation

The intricate network of coastal waters provides great opportunity and challenge for the boater, kayaker and canoeist. The high country attracts hikers, climbers and photographers. Opportunity exists everywhere for wildlife observation and photography, fishing and

West Chichagof - p.2

hunting. Soaking in the hot springs is a well-remembered West Chichagof experience.

Forest Service Plans: Mining is sometimes cited as a conflict in the area, even though no mining has taken place there since 1941. Mining ventures have not proven profitable in recent times on West Chichagof-Yakobi Island. Inspiration Development Company holds some active claims around Bohemia Basin on Yakobi Island and around Mirror Harbor, from which they hope to extract nickel. The deposits are poor grade and mineral extraction and concentration provide many severe environmental and economic hurdles to overcome. Inspiration's objective appears to be to insure their option to mine in the future. Wilderness designation would not foreclose that option as long as their claims remain valid.

West Chichagof-Yakobi Island is within the Alaska Lumber and Pulp Company's 50-year timber contract area. In response to the Sitka Conservation Society's Wilderness proposal, the Forest Service, in 1971, agreed to defer timber harvest for a five-year study period. The draft environmental impact statement resulting from the study was issued in July, 1975. It listed five alternatives, from wilderness study to intensive development, but gave no preferences for any one alternative. The final EIS, released in February, 1976, proposed that a line be drawn down the middle of West Chichagof-Yakobi Island, with logging to occur on the eastern side and an undefined backcountry designation made for the western side. On June 1, 1976 Regional Forester John Sandor announced approval of the above proposal, with the exception of reserving 40,000 acres of outer islands and the Khaz Peninsula for Wilderness Study. Sandor's decision has been appealed by the Sierra Club and the Southeast Alaska Conservation Council as arbitrary and capricious.

Stikine-Le Conte Wilderness Area Proposal

Size: 305,000 acres

Location: On the mainland, 10 miles north of Wrangell.

Wilderness Values:

(1) geography

John Muir called the Stikine River Valley "a Yosemite one hundred miles long." This mighty, silt-laden river rushes through a spectacular glacier-carved valley with a speed greater than any other major river in North America. Above the lush riverside cottonwoods towers the Coastal Range, whose peaks rise to 9,000 feet above the mouth of the river. The proposed Wilderness Area extends north to include the cliff-lined fjord into which the Le Conte glacier calves its enormous icebergs. This is the southernmost glacier to reach saltwater in North America. North of Le Conte Bay are the steep coastal walls called the Horn Cliffs.

(2) fish

All five species of Pacific salmon migrate up the Stikine River on their way to spawning areas in Alaskan and Canadian waters. Rainbow, cutthroat, brook trout, Dolly Varden and steelhead are also plentiful.

(3) wildlife

Estuarine ecosystems are among the most productive in the world. The Stikine Flats is singularly important because here, at the mouth of this powerful river, is the largest estuarine/tideflat ecosystem in Southeast Alaska. Hundreds of thousands of waterfowl migrating along the Pacific flyway between the Arctic and all parts of the western hemisphere depend each year on the Stikine Flats for food, shelter and rest. For some, like the snow geese, this area is their only major stopping place in southeast Alaska. The Flats also support a moose population.

The area in general includes mountain goat, brown and black bear, deer, wolf, wolverine, otter, marten, mink, beaver and various smaller mammals. Birds include hawks, bald eagles, ducks, geese, swans and various song birds.

(4) recreation

The Stikine River is highly popular among Wrangell residents, as it is just a 30 minute ride by small motorized boats or a couple hour paddle by nonmotorized boats from Wrangell to this proposed Wilderness. Wrangell residents depend on the Stikine River for high quality fishing, hunting and other wilderness experiences. The Stikine-Le Conte area is also well-known all over the country. Every year hundreds of tourists visit Le Conte Bay via chartered tour boat from Petersburg. Private and commercial float trips down the Stikine River are now a regular occurrence each summer.

Forest Service Plans: The Forest Service presently has no definite plans for management of this area.

Situk National Wild River Proposal

Size: 20,000 acres

Location: On the Gulf of Alaska, 8 miles east of Yakutat; bordered on the north by (and flowing out of) the Russel Fjord Wilderness Study Area.

Wilderness Values:

(1) geography

The area is generally comprised of a stable, relatively slow flowing mainland river and stream system. It contains notable pool and riffle complexes which harbor significant fisheries populations. The river is surrounded by flat to gently sloping terrain. Also present is a diverse range of riparian vegetation which is important for terrestrial wildlife habitat.

(2) fish

The steelhead runs in the Situk River during the spring and fall are the finest in Alaska. The run of Dolly Varden is outstanding. The Situk River watershed contains all five species of Pacific salmon. Besides offering internationally famous river fishing, the lakes within this watershed provide exceptional angling for resident rainbow trout. The Situk is, understandably, a significant contributor to the local commercial fisheries.

(3) wildlife

Bald eagle nesting sites are numerous along the entire length of the river. From Mountain Lake to Forest Highway #10 is some of the best brown bear habitat in Alaska. The watershed also supports a sizable moose population, some of which have been trophy size.

(4) recreation

The area currently contains two Forest Service recreational cabins which are quite accessible. The Situk River itself is especially attractive to fishermen because it is large and slow enough to permit float type fishing trips. There are also excellent opportunities for eagle and brown bear observation and photography.

Forest Service Plans: The Forest Service has no specific plan for this unit at present.

Proposed Glacier Bay National Park Addition:

Endicott River

Size: 109,000 acres

Location: On the Chilkat Peninsula, approximately 30 miles south of Haines and 40 miles northwest of Juneau, bordered on the east by Lynn Canal and on the west by Glacier Bay National Monument.

Wilderness Values:

(1) geography

The western border of the Endicott River watershed is formed by the Chilkat Range. The rugged Chilkats, reaching to over 4,000 feet in elevation, are broken at the head of the river by Endicott Gap, a strikingly gentle, broad pass which leads into drainages tributary to Adams Inlet, in Glacier Bay National Monument. The Endicott River flows from west to east, bounded by mountainous arms that reach toward it from the north and south, until it spills into Lynn Canal, west of Berner's Bay. In neoglacial times, the Endicott was the only place where ice spilled over from Glacier Bay toward Lynn Canal.

(2) fish

The Endicott River drainage is a major salmon stream on the east Chilkat Peninsula. The river is an important anadromous fish producer, with pink, chum, and silver salmon, dolly varden char and cutthroat trout. The coho that spawn in this system contribute to the Juneau area saltwater sport and commercial fishery.

(3) wildlife

The valleys and streams of the Endicott River drainage provide habitat for moose, deer, mountain goat, brown and black bear. The Endicott River is also a key nesting and breeding area for waterfowl. At the river's mouth is an excellent habitat for marine mammals. Wolves also inhabit the area. The low pass at the head of the Endicott is probably used as an animal migration route between the east and west side of the Chilkat Range.

(4) recreation

The spectacular setting among the Chilkat Mountains, bordering on the waters of Lynn Canal, a deep, rugged fjord, gives the area high recreational value. The Endicott Valley provides access into the high country of the Chilkat Mountains for backpackers, climbers and hunters. The big game animals and waterfowl are hunted by Juneau, Haines and Skagway residents. There is good fishing in the Endicott River, and opportunity abounds for photography and bird and wildlife observation.

Forest Service Plans: The Forest Service has no specific plans for this area presently.

Duncan Canal Wilderness Area Proposal

Size: 120,000 acres

Location: Duncan Canal is the northward branch of salt water from Sumner Strait that separates the Lindenberg Peninsula from most of the rest of Kupreanof Island. The study area is located directly west and southwest of Petersburg, separated from the town by as little as 10 miles across the Lindenberg Peninsula.

Wilderness Values:

(1) geography

The proposed study area includes the land surrounding the northern half of the canal from the ridge line to tidewater. The boundaries were set so that the river and creek systems that flow into the canal and the canal's rich tidal flats would receive maximum protection.

(2) fish

The Duncan Canal area is inhabited by all the Pacific salmon species except King, along with Dolly Varden, cutthroat and rainbow trout. There are 29 streams along the canal north of the Castle Islands that are anadromous fish streams. The salt chuck at the head of the canal and the Castle River are both among the 18 "quality fishing waters" designated in Southeast Alaska by the Alaska Department of Fish and Game.

Duncan Canal is the most important shrimp producing grounds in Southeast Alaska and produces a considerable catch of Dungeness crab.

(3) wildlife

Duncan Canal is considered the second most important waterfowl area in Southeast Alaska. Tidal flats are extensive and provide an ideal resting area relatively free from disturbance and predators. The upper reaches of the canal and the salt chuck at its head contain extensive wetlands providing a considerable waterfowl breeding area.

Mammals in the Duncan Canal area include Sitka black-tailed deer, black bear, wolf, mink, land otter, martin, beaver and ermine. The entire beach fringe around Duncan Canal is important to deer as winter range. Marine mammals include the harbor porpoise and whales.

(4) recreation

The extensive tide flats at the southwest end of the salt chuck is an outstanding place to observe deer, bear and otter. There are primitive Forest Service cabins at the salt chuck and the mouth of the Castle River. There is excellent fishing for cutthroat, silver salmon, Dolly Varden and steelhead trout. The deer and waterfowl hunting is excellent.

Forest Service Plans: On July 2, 1976 the Forest Service released the final EIS for the South Lindenberg Peninsula Unit Management Plan which proposes the harvest of the commercial timber on the Peninsula. The plan conflicts with 6800 acres of the Duncan Canal Wilderness Area proposal in the Mitchell Slough area, including a proposed log dump and camp one mile south of Mitchell Slough. Before the final EIS was released, the Forest Supervisor approved the environmental analysis report for the Tonka Mountain Timber Sale which was not discussed in the final EIS but was the primary justification for doing the EIS. Despite the fact that public sentiment in response to the draft EIS favored no logging within the SEACC proposal, the final EIS was a carbon copy of the draft. The SEACC appeal from the Supervisor's decision to proceed with the South Lindenberg Peninsula Plan is now at the Regional Forester's office.

Karta River Wilderness Area Proposal

Size: 47,000 acres

Location: The Karta watershed is near the middle of Prince of Wales Island, about 40 miles west of Ketchikan.

Wilderness Values:

(1) geography

The Karta River flows from Salmon and Karta Lakes through low hills over a series of falls, rapids and pools to the tidal flats of Karta Bay. Karta and Salmon Lakes are situated at low elevations in glacier-carved mountain valleys, with views of the Klawock Mountains in the west. The spectacular granite pinnacles of the Klawock Mountains are some of the island's highest and most scenic. Steep slopes of these mountains drop into Black Bear Lake, a cirque mountain lake included in the proposal. Melting snow from the peaks creates spectacular waterfalls into the lake. The east side of the Karta river and lake system burned over 70 years ago. This area, now populated largely with red cedar, provides an opportunity to study and view the natural succession after a fire that is extremely rare in Southeast Alaska.

(2) fish

The Karta River is on 3 Alaska Department of Fish and Game priority lists: it is one of the best sport fishing areas in the former South Tongass Forest; it is one of the 30 watersheds in Southeast Alaska that have been proposed by the Alaska Department of Fish and Game since 1961 for management as "natural areas"; and it is one of the 18 "quality fishing waters" in Southeast Alaska proposed by the Sport Fish Division in 1972 for protection as undeveloped areas. Thousands of chum, coho, sockeye and pink salmon spawn in the Karta River drainage and the watershed abounds in Dolly Varden char and steelhead, rainbow, and cutthroat trout.

(3) wildlife

Big game species include blacktail deer, black bear and wolf. There is an abundance of fur bearers, including beaver, otter, marten, mink and weasel. Salmon Lake is a fall and spring use area for trumpeter swans. Some swans also winter there.

(4) recreation

Sport fishing in Karta is outstanding and well-known in Southeast Alaska. Fishermen from all over the U.S. come to the Karta River for the trout fishing. The Forest Service has five primitive cabins in the Karta area, strategically located near the good fishing spots. Access is by float plane or Forest Service trail. Opportunities exist for hunting, photography, wildlife observation and hiking. A trail from Black Bear Lake gives access to the high country. Petroglyphs on the southern side of Karta Bay are another attraction as well as another reason this area needs protection.

Mineral Resources: There has been no mining within the Karta River watershed since the days of the Flagstaff gold mine between 1931 and 1941. All that remains of this operation today are a few fallen buildings, some rusty machinery and the tailings. Prospecting since 1941 has produced only unpatented claims in nine areas of the Karta drainage.

Forest Service Plans: The Karta watershed is within the 50-year Ketchikan Pulp Company*timber sale contract area. The contract expires in the year 2006. The watersheds which surround the Karta drainage have been logged extensively as part of this contract. Forest Service planning is now underway for the Karta drainage.

* now Louisiana Pacific - Ketchikan Division

Southeast Alaska Conservation Council, Inc.

BOX-2778

JUNEAU, ALASKA 99803

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202-547-1144



Etolin Island Wilderness Area Proposal

SEACC

Size: 235,000 acres

Location: East of Prince of Wales Island, about 10 miles southwest of Wrangell.

Wilderness Values:

(1) geography

Etolin Island is one of the few undeveloped islands remaining in the Alexander Archipelago. The island is rich in landform and geologic variability. Numerous bays, inlets and coves indent the coasts of Etolin, with several long narrow inlets extending far into the interior of the island, nearly bisecting it. The southeastern, northern and western parts of the island each have groups or chains of mountains with peaks in the alpine zone. Several dozen small lakes are found in the amphitheater-like alpine cirques, while other larger lakes are found throughout the island at varying elevations. Numerous streams drain from these lake and mountain systems to the various island waterways at tidewater.

(2) fish

There are 30 known anadromous salmonid streams on the island in addition to numerous tributaries and small streams used by rearing fry. Etolin Island harbors the richest concentration of salmon spawning grounds of any of the islands in the Wrangell area. There are many important estuarine areas on the island where Dungeness crab and other shellfish are abundant.

(3) wildlife

Big game species include black bear, wolf and deer. Mink, porcupine, marten, otter and beaver are among the non-game species. Eagle nests are common along the coastline. The grassy tidal flats at the heads of the bays and inlets are vital to many wildlife species including small furbearing mammals and wolves, as well as waterfowl and other birds.

(4) recreation

The island is heavily used for wilderness recreation by Wrangell residents. Cutthroat and rainbow trout, steelhead and Dolly Varden provide sport fish opportunities in the numerous streams and lakes. A potential exists for trail access to the extensive high country and highly scenic alpine areas of the island. There are numerous fine anchorages around the island. Hunting, fishing, camping, hiking, beachcombing and photography are all experiences provided by the Etolin Island wilderness. The Forest

Service system of quantifying the wilderness quality of roadless areas has given Etolin Island a numerical rating that is higher than those of over 80% of the Forest Service's own wilderness study areas, nationwide.

Forest Service Plans: The Forest Service permitted road construction and timber cutting in the Olive Cove area of Etolin Island without the completion of an EIS. This was the first road building on Etolin Island and fortunately is not extensive. Most of the rest of the Island remains untouched.

The Stikine area Forest Service office is now planning timber sales throughout the northern end of the Island, despite the high wilderness rating Etolin has received and the roadless review now taking place.



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Dall Island Wilderness Study Area Proposal

Size: - 160,000 acres

Location: Dall Island lies west of Prince of Wales Island in southern southeast Alaska. It is approximately 60 miles southwest of Ketchikan.

Wilderness Values:

(1) geography

Dall Island is a low, forested island of about 47 miles in length and 10 miles in its maximum width. The eastern shoreline contains many bays and coves that provide safe boat harbors, whereas the western shoreline is rugged and relatively dangerous for small boats due to direct exposure to the Pacific Ocean swells. Dall Island offers about 100 miles of scenic wilderness coastline on its western shore, characterized by rocky cliffs and sandy beaches, exposed overlays of rock formations, craggy limestone and marble crevices.

(2) fish

Dall Island contains 66 salmon streams. Three are considered by the Alaska Department of Fish and Game as "critical habitat of exceptional value;" 21 are considered "critical habitat of high value;" 12 streams are "important fish habitat of high value;" 27 are "important fish habitat." One eastside stream in Datzkoo Harbor has an estimated spawning area of 13 percent of the island total, with a production potential of more than 25,000 fish. The Dall Island fisheries includes chum, pink, coho and sockeye salmon, Dolly Varden, crab, abalone and clams.

(3) wildlife

Dall Island is important habitat for many kinds of birds. The peregrine falcon, ptarmigan and numerous non-game species maintain breeding populations on the island. Seabirds are abundant along the shores, including rhinoceros-billed auklets, murrelets, cormorants and murres. Seabirds may use Tlevak and Kaigani Straits east of Dall Island as important winter feeding areas. Mammals on the island include Sitka blacktail deer, black bear, wolf, mink, both land and sea otters, beaver and marten.

(4). recreation

Wilderness beachcombing opportunities have almost disappeared in the continental United States, outside of Alaska. Dall Island's are among the most isolated and pristine of any of southeast Alaska's coastlines that receive the open ocean swells. The gentle topography of the island allows access by foot from the safe harbors of the eastern shore to the wave-beaten western coast. Thus, enjoyment of the island's wilderness beachcombing opportunities is part of a broader wilderness experience that includes the tranquil eastern shore and the forested central mountain ridge. No part can be degraded without accompanying dilution of the whole wilderness experience.

(5) history and archeology

Dall Island contains many sites of historic and prehistoric significance, including: the abandoned Haida Indian village of Howkan which was one of the Haida's largest villages at one time; Kaigani, another major abandoned Haida village which served in the late 1700's as the favorite port of rendezvous for traders and seamen at the end of each summer; the sites of several smaller abandoned Indian villages, including one which is reported to have had an Indian fort and which served as a favorite anchorage for trading ships from around the world; the site of a Northwest Trading Company post, established around 1883; and some reported petroglyph sites. Limestone caves on the northwestern tip of Dall Island produced the only known discovery of mummified Indian remains in Alaska.

Forest Service Plans: The Forest Service is gathering data in preparation for preparing a management plan for the island. No decisions or plans have been made to date.

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BOX-2778

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Idaho Inlet-Mud Bay Wilderness Study Area Proposal

Size: 100,000 acres

Location: Northern end of Chichagof Island, just 8 miles south of Glacier Bay National Monument.

Wilderness Values:

(1) geography

The proposed study area encompasses the watersheds tributary to Idaho Inlet and Mud Bay. These two arms of salt water originate in the South Passage of Icy Strait. Idaho Inlet is longer and surrounded by much steeper terrain than Mud Bay. Lush river valleys, steep rocky terrain, 3,000-foot peaks rising out of tidewater, alpine lakes and expansive tidal flats are all part of this magnificent area.

(2) fish

The Mud River-Otter Lake watershed serves as spawning and rearing area for pink, coho, chum and sockeye salmon, Dolly Varden char and cutthroat trout. The area is also known for its shellfish resources.

(3) wildlife

The wildlife is abundant, particularly brown bear and waterfowl. The waterfowl habitat is excellent. Goose, duck and shorebird use is high. The tidal flats at the head of Idaho Inlet is an intensive spring use area for brown bear.

(4) recreation

Spring and fall bear hunting and exceptionally fine waterfowl hunting and viewing is available in this area. The opportunity to observe wildlife and explore the untouched river valleys and little known high country is outstanding.

Forest Service Plans: A road is now being constructed to the Mud Bay drainage from the south, as part of the Alaska Lumber and Pulp Company's 1976-1981 operating plan. The Forest Service has said that the road will not be allowed to enter the proposed wilderness study area until December, 1978 (and then only if the current planning process determines that the area should not become a wilderness study area). However, allowing road construction to the border of the area could be construed as a decision by the Forest Service to continue the road and harvest timber within the area once the planning exercise is completed.

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Kadake Creek Wilderness Study Area Proposal

Size: 15,000 acres

Location: Northeast tip of Kuiu Island, about 40 miles west of Petersburg and 10 miles south of Kake (a small Indian village).

Wilderness Values:

(1) geography

The Wilderness Study proposal encompasses Kadake Bay and the broad scenic valley of Kadake Creek below the main forks. The limestone-marble exposures which occur on both sides of Kadake Creek add to the natural beauty of this area. The Bay is a rich estuary, becoming almost entirely exposed at low tide.

(2) fish

Kadake Creek is one of the few outstanding cutthroat and steelhead systems in the Tongass Forest. It is the largest stream on Kuiu Island, and is one of the key salmonid producers in the area.

(3) wildlife

Kadake Bay is an important waterfowl and sea bird wintering area. The bay vicinity is an area of black bear intensive use in the spring.

(4) recreation

According to the Alaska Department of Fish and Game, the Kadake system is one of the 18 "quality fishing waters in Southeast Alaska. Such an area is defined as "a watershed of outstanding natural aesthetic beauty in a wilderness setting with fishing characteristics that add up to an exceptional angling experience." There is waterfowl hunting on the flats and deer hunting in the lowland forest surrounding the creek.

Forest Service Plans: Several cutting units and a road are proposed within the area as part of the Alaska Lumber and Pulp Company 1976-1981 operating plan. So far, the road has reached the lower Kadake Creek area, but no cutting has taken place. SEACC has appealed the decision to log this area, maintaining that the few cutting units planned for the proposed wilderness study area can easily be substituted elsewhere.



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St. James Bay Wilderness Study Area Proposal

Size: 32,000 acres

Location: The eastern side of the Chilkat Peninsula, about 25 miles northwest of Juneau and 40 miles south of Haines.

Wilderness Values:

(1) geography

The area is comprised of St. James Bay and associated islands and harbors, the partially forested country immediately surrounding these waterways, and most of the drainage system northwest of the bay. A good part of the area is tidal flats and grassy meadows. The Chilkat mountains tower in the background.

(2) fish

There are five catalogued salmon streams which flow into the bay. One of these streams is an excellent cutthroat trout stream. The area also supports a large crab fishery.

(3) wildlife

Black bears, brown bears, mountain goats and moose are found in the area. The low country is important as winter habitat for goat, moose, deer and other animals. The tidal flats, the most extensive in the north Tongass Forest, are important feeding and resting grounds for migratory waterfowl.

(4) recreation

The area is frequently used by Juneau boaters, hunters and fishermen. It offers excellent anchorages and provides access into high country of the Chilkat Mountains. Bear and waterfowl hunting is excellent. The fishing is good, with salmon and cutthroat trout in abundance. The Bay is well situated for primitive recreational opportunities.

The meadows, tidal flats, mountainous background, and the great variety of islands, shorelines, bays, lagoons and cliffs create a scenic wilderness setting. Good opportunity exists for photography and bird and wildlife observation.

Forest Service Plans: The Forest Service has had timber sale plans listed in its 5-year action plan since 1972 for the St. James Bay area. Last year an EIS was filed proposing timber harvest in several portions of the Southern Chilkat Peninsula, including St. James Bay. The State of Alaska Departments of Fish & Game and Law have opposed logging on the eastern side

of the Chilkat Peninsula and the federal Departments of Commerce and Interior expressed concerns regarding log dumps in St. James Bay and roads in general along the east side of the peninsula. SEACC filed an administrative appeal to the EIS, which now is before the Regional Forester. The Forest Service has decided to postpone any timber sale in this area until completion of the Tongass Land Use Management Plan, expected in December, 1978.

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BOX-2778

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Rocky Pass Wilderness Study Area Proposal

Size: 72,000 acresLocation: The Rocky Pass area is formed by a narrow, intricate waterway that separates Kupreanof Island from Kuiu Island. It is approximately 30 miles from Petersburg and 10 miles from the Native village of Kake.Wilderness Values:

(1) geography

The Rocky Pass shoreline bounds a narrow, rock-studded scenic channel. The navigable waterway twists through numerous reefs, rock outcrops and islands. The SEACC boundary follows the north and south ridges that border Rocky Pass and circles around Big John Bay at the north end of the waterway. The whole natural system with its numerous bays, streams and tidalflats is protected within the SEACC boundary.

(2) fish

The streams provide important habitat for pink, chum, coho and sockeye salmon. In addition, cutthroat, steelhead and Dolly Varden provide sport fishing in many of the streams.

(3) wildlife

The Rocky Pass area serves as a key resting and feeding area for waterfowl on a major international migration route. It is also a nesting ground for waterfowl including the Canada goose. The virgin forest along the shoreline provides significant deer winter range for a large deer population.

(4) recreation

This passageway and the many bays and streams furnish the hunter, fisherman and boater a high quality wilderness experience. It is a popular hunting and fishing area for people all over Southeast Alaska.

Forest Service Plans: On September 14, 1976 the Forest Service released a draft environmental impact statement for the proposed North Irish Creek timber sale. The sale area encroaches on the northeast boundary of the SEACC proposal.

The Forest Service plan is to allow clearcutting and roads south from Hamilton Creek into seven of the drainages that flow into Rocky Pass from the east. Despite the fact that the Forest Service has known for over a year that conflicts exist with the particular road and clearcut layout proposed, no alternative cutting areas to those located within the SEACC proposal are discussed in the draft EIS. There are also other areas nearby which have been advertised for sale but which the industry won't bid on, claiming that the stumpage price is too high. The final EIS has not been released.

Pavlof Harbor Wilderness Study Area Proposal

Size: 18,000 acres

Location: The Pavlof Harbor area is on the eastern side of Chichagof Island. It is located immediately northwest of the point of departure between Tenakee Inlet and Chatham Strait. Pavlof Harbor is a small sheltered area in the lower reaches of Freshwater Bay. The area is approximately 55 miles northeast of Sitka and 38 miles southwest of Juneau.

Wilderness Values:

(1) geography

The Pavlof River watershed is almost circular due to a 2,000-foot peak in the very center of the area which divides the northward-flowing main branch of the river from the two eastward-flowing tributaries which begin very near the point of origin of the main branch. The main branch of Pavlof River winds its way north, northeast and then southeast through low valleys of interspersed forest and muskeg, to eventually encircle the central mountain and join the remaining tributaries before flowing into Pavlof Lake and then immediately into the Harbor.

(2) fish

The Pavlof system is an important spawning and rearing area for coho and sockeye salmon, cutthroat trout and Dolly Varden char. The coho that spawn and rear here are early-run fish, believed to be unique in southeast Alaska. The area is also an important dungeness crab producer.

(3) wildlife

Wildlife species found in the watershed include Sitka blacktail deer, river otter, brown bear, mink, pine marten and shrews. The deer are abundant. The small ponds along the Pavlof River are excellent habitat for migratory waterfowl. The beaver ponds and sloughs along the main stream provide habitat for numerous species of ducks as well as Great Northern and Canada geese.

(4) recreation

The Pavlof Watershed is one of the most accessible lake systems on north Chichagof Island. There are no other areas offering the same primitive recreational opportunities in the nearby area. Recreation potential includes lake fishing for char, angling for trout and salmon in the streams, and trolling in saltwater off the mouth of the Harbor. There are areas quite suitable for camping near the lake and along the river. The lower 5-6 miles of river is an excellent canoe route.

Forest Service Plans: Since Pavlof Harbor was included in various proposals for protection, the Forest Service has proceeded to log along Pavlof River. The original SEACC proposal was made in April, 1975. An EIS proposing to harvest the timber of this watershed under the Alaska Lumber and Pulp Company 1976-

1981 operating period for their 50-year contract was released in February, 1976. The EIS ignores SEACC's proposal for the area and describes the environmental impacts only in a general way. While SEACC has filed an administrative appeal, the area has been partially logged along the River.

Sarkar Lakes Wilderness Study Area Proposal

Size: 32,000 acres

Location: West side of Prince of Wales Island, 50 miles southwest of Wrangell and 75 miles northwest of Ketchikan.

Wilderness Values:

(1) geography

The area borders on narrow, rock-strewn El Capitan Passage on the west, and encompasses a forested area of relatively gentle topography, dotted with lakes. The saltwater protrudes into a number of coves, inlets and a large saltwater lagoon, into which empties the area's intricate network of lakes and streams.

(2) fish

The area is rated among the top ten sport fishing systems in Southeast Alaska. Four species of salmon spawn in the area. Excellent steelhead runs and trout fishing are reported.

(3) wildlife

The Sarkar Lakes are probably the most important trumpeter swan wintering areas in Southeast Alaska, and the area is on an Alaska Department of Fish and Game list of key waterfowl habitat areas on Prince of Wales Island.

(4) recreation

The interconnecting lakes and streams provide good canoeing opportunities throughout the area. The sport fishing here is outstanding, particularly for cutthroat trout and coho salmon.

Forest Service Plans: The Sarkar Lakes area is within the Louisiana Pacific - Ketchikan 50-year timber sale area. Recent logging and road construction in connection with this contract has affected the southern part of the lower Sarkar Lake. The upper lakes are intact. No additional logging within the area is expected in the next five year (1979-1984) operating period.

Sweetwater - Honker Divide Wilderness Study Area Proposal

Size: 94,000 acres

Location: Northeast Prince of Wales Island, approximately 50 miles northwest of Ketchikan, 40 miles southwest of Wrangell.

Wilderness values:

(1) geography

The area encompasses the Sweetwater Lake watershed and most of the Thorne River system. Both of these are extensive watersheds of numerous interconnecting lakes, ponds, rivers and streams. Sweetwater Lake is the second largest freshwater lake on Prince of Wales Island. It is fed by Logjam Creek and Hatchery Creek. Hatchery Creek flows through four major lakes before entering Sweetwater Lake. Thorne River is the largest island river system in Southeast Alaska. Together the Hatchery Creek and Thorne River systems include over 4400 acres of standing water.

The Thorne River valley has the finest example and variety of glacial landforms in the Tongass Forest. This extremely wide valley is one of the few areas where drumlins (morainal mounds) can be found. It is largely covered by unusually deep glacial deposits and has extensive areas of deep muskegs that have formed over what were once ponds and lakes.

(2) fish

Thorne River is considered to have some of the best spawning habitat in Southeast Alaska. The Alaska Department of Fish and Game has ranked both Sweetwater Lake and the Thorne River among the top four sport fishing areas in the southern part of the Tongass Forest. Fish hosted by the system include pink, chum, sockeye and coho salmon, dolly varden char, and cutthroat, rainbow and steelhead trout.

(3) wildlife

The Honker Divide is one of the most valuable and complex wildlife habitats on the southern Tongass Forest. Wildlife of the area include black bear, deer, wolf and numerous furbearers. The Thorne River area is unique in Southeast Alaska for its sizeable population of inland-nesting bald eagles. Sweetwater Lake is one of the few freshwater lakes to have large numbers of hair seals. Migratory waterfowl are abundant, and the Alaska Department of Fish and Game lists the area as key waterfowl habitat. This is a major wintering area for trumpeter swan. Ospreys have been sighted in the area in the past.

(4) recreation

Boating opportunities are excellent. Sweetwater Lake is a large lake with interconnected streams and lagoons. It has the potential for a variety of boating and will accommodate any size and type of boat that can gain access. One of the most attractive recreation

features of the area is the potential for canoeing throughout the interconnecting lakes, streams and rivers. It is also possible to canoe through this area and across Prince of Wales Island to Sargak Lakes on the other side. Viewing wildlife has considerable potential at the falls on Hatchery and Logjam Creeks where bears congregate to fish for spawning salmon. Eagles, mink, otter and an occasional wolf may also be seen along these streams. Sport fishing is also very good in the area. Red, silver, pink and dog salmon, dolly varden char, and cutthroat, rainbow and steelhead trout are present.

Forest Service Plans: Permanent communities at Craig and Klawock, and logging camps at Thorne Bay, Coffman Cove and Naukati are all near the Sweetwater Lake system. All of these areas are being connected by roads surrounding the proposed wilderness study area. The Alaska State ferry connection from Ketchikan to Hollis makes this road system accessible by auto, making it even more important that the Sweetwater-Monker Divide area have wilderness protection.

The northern portion of the area has been included in the 50-year timber sale to the Louisiana Pacific - Ketchikan Division. Extensive logging and road building have occurred from a spot just north of Lake Calca all the way into the Sweetwater Lake area. This activity proceeded in the summer of 1977, in callous disregard of pending legislation affecting the area. The Forest Service has repeatedly rejected the requests of Southeast Alaskans to postpone logging plans in this truly unique area until full study of its wilderness values has occurred.

The Forest Service has filed an environmental impact statement proposing to sell timber harvest contracts for portions of the Thorne River area. An administrative appeal by the Southeast Alaska Conservation Council, seeking protection of the area, was not even evaluated on its merits, but was rejected for being filed four days late.

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BOX 2778

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Salmon Bay Wilderness Study Area Proposal

SEACC

Size: 21,000 acres

Location: Northeast corner of Prince of Wales Island, approximately 40 miles south-southwest of Petersburg and 40 miles west-southwest of Wrangell.

Wilderness Values:

(1) geography

The area consists of Salmon Bay, which has numerous smaller bays and inlets branching off of it as well as an extensive area of tidal flats and meadows, and the surrounding low-lying wooded area with Salmon Lake in the center.

(2) fish

Four species of salmon are found in the area, as well as one of the few native rainbow trout populations in Southeast Alaska. There are both spring and fall runs of steelhead in Salmon Bay Creek. Dolly Varden are also present.

(3) wildlife

Deer, wolves and black bear live in the area. The Alaska Department of Fish and Game rates the Salmon Bay tide flats and meadows as one of the most exceptional waterfowl areas in Southeast Alaska. The Bay is used fall, winter and spring by trumpeter swans. Substantial numbers of Canada geese winter and nest here.

(4) recreation

Salmon Bay Creek is on the Alaska Department of Fish and Game list of 18 top quality sport fishing streams in the South Tongass. Salmon Bay Lake is a scenic lake which provides good fishing. Deer hunting is very good in the area. There is also opportunity in the area for camping, hiking, photography and wildlife observation.

Forest Service Plans: The Forest Service has no definite plans for this area at this time.



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North Kruzof Wilderness Study Area Proposal

Size: 14,000 acres

Location: North Tip of Kruzof Island, 25 miles northwest of Sitka, just south of Chichagof Island.

Wilderness Values:

(1) geography

There are two major bays and a cove in the area. The remainder of the coastline faces open ocean with numerous small islands and rocks offshore. Sea Lion Cove has sand beaches of a type not found elsewhere in Southeast Alaska south of Yakutat. The land rises steeply from the shoreline except for large tidal meadows at the heads of the bays. There are a couple of small lakes in the area.

(2) fish

Dungeness crabs are plentiful and a good run of salmon spawn in the chuck at the head of Kalinin Bay. An excellent run of salmon is supported by the chuck at the head of Sinitzin Cove, and during the seining season a buyer is usually anchored in the mouth of the bay to serve the boats fishing just outside. In addition to salmon, herring, rockfish, Pacific cod and smelt are found in the bays.

(3) wildlife

All of Kruzof Island is a good deer area. There are some key deer wintering areas near Kalinin and Sinitzin Bays. Besides deer there are brown bear, land otter, mink, marten and ermine. Harbor seals and harbor porpoise inhabit the area's waters. An abundant variety of birds live in the area, including bald eagle, raven, kingfisher, great blue heron, downy woodpecker, waterfowl including Vancouver Canada and snow geese, gulls and arctic loon.

(4) recreation

Excellent sport and subsistence hunting is possible throughout the area. Grayling have been planted in Surprise Lake, making some good lake fishing. Sea Lion Cove's expanse of pale sand, fronting the open ocean and backed by a stand of open timber, offers recreation for campers, hikers, backpackers and hunters, to mention only a few. Kalinin Bay, the only good anchorage for small craft in the immediate area, accommodates as many as 50 or 60 boats each

night during the fishing season. Herring school in the bay during the greater part of the summer, providing bait for the fishermen and food for salmon and hundreds of bald eagles. Open muskegs and moderate terrain above the bay provide pleasant hiking and snowshoeing or cross country skiing.

(5) archaeology

The presence of petroglyphs in both bays make them important cultural areas.

Forest Service Plans: The North Kruzof area is being considered for harvest during the Alaska Lumber and Pulp Company's 1981-1986 operating plan. No commitment will be made until the Tongass Land Use Mangement Plan is completed (scheduled for December, 1978).

GLACIER BAY ADDITIONS: D-1 LANDS

size: approximately 660,000 acres

location: on the Gulf of Alaska coast 8 miles south east of Yakutat, between the coastal Tongass National Forest lands on the north and west, the Canadian border on the north and east, and the Glacier Bay National Monument on the southeast.

wilderness values:

1) geography

The area is comprised of the Wrangell Range and the Deception Hills, with the former being a part of the St. Elias Range which includes numerous blocklike mountains 10,000 to 19,000 feet high. The Deception Hills contain numerous clearwater lakes and streams, and rise sharply into the high, rugged Fairweather Range in the adjoining Glacier Bay National Monument. Through the eastern portion of the proposal flows some 20 miles of the glacial, swift Alsek River. The area also contains coastal forelands which are narrow, flat plains edged by the surf-washed ocean beaches, all of which combine to provide a marked contrast to the extensively glaciated inland mountains. The climate is generally wet and cool due to the strong influences of the Gulf of Alaska and the coastal mountains. The area's vegetative cover varies greatly, and contains a wide range of ecosystems including sand dunes, swamps, muskeg, forest a few dense stands of Sitka spruce and hemlock forests, numerous willow and alder thickets, and finally the higher elevation alpine tundra communities.

2) fish
area's two

The two major river systems, the Alsek and the Doane, support runs of sockeye, coho, pink, chum, and king salmon. These runs are extremely vital to the maintenance of an important gill net fishery on both rivers.

3) wildlife

A variety of wildlife habitat types are present, ranging from uplifted well-drained coastal flats interlaced with muskegs and marshes to rugged hills and mountain terrain. The lower elevations support significant populations of moose, black and brown bears. The higher areas below the icefields also provide extensive habitat for mountain goats and the rare glacier bear. The many tidal drainages, sloughs, lakes, ponds, and streams are used by migratory waterfowl and shorebirds. A large variety of songbirds and birds of prey, including significant numbers of bald eagles, utilize the area. Furbearers and predators such as weasel, marten, mink, beaver, wolverine, and wolves are also found.

4) recreation

At present, sport hunting accounts for most of the recreational activity, with relatively minor amounts of sport fishing taking place. The opportunities ~~extensively~~ for recreational enjoyment of the scenic resource are extensive. The variety of waterways and lakes as well as as landforms ranging from beautiful coastal beaches to spectacular mountains and glaciers provide almost unlimited hiking, back packing, beach combing, viewing and photographing opportunities. The Alsek River has ~~recently~~ ~~been~~ ~~recently~~ ~~been~~ ~~recently~~ ~~been~~ been recently receiving increased attention by white-water enthusiasts and other recreational users as an exceptional wild river with unique recreational potentials.

Tongass

TONGASS NATIONAL FOREST WILDERNESS AND WILDERNESS STUDY AREAS

LOCATION:

Southeast Alaska

GEOGRAPHY:

Rainforest ecosystem in a string of mountains forming the protected "inland passage" of the Alexander Archipelago. Noted for the fjords deeply indenting the Coast Range of mountains which form the boundary with Canada to the east.

RESOURCES:

1. 20,000 miles of tidal shoreline, roughly 60% of the total Alaskan coast, support harbor seals, stellar sea lions, sea otters and many species of whales and porpoises.
2. The extensive tidal flats host millions of migratory waterfowl each year. Nearly the entire world population of Vancouver Canada geese breed and remain all year.
3. The 5530 miles of salmon spawning streams provide one of the most significant fisheries resources on the continent. All 5 species of Pacific salmon use these waters.
4. Wildlife species common to the Tongass National Forest include species that are endangered or threatened elsewhere in the U.S.: timber wolf, bald eagle, pine marten, brown bear, wolverine, trumpeter swan, and the rare glacier bear.
5. The lush, rain forest habitat is the resource which makes the others possible. The trees of the virgin forest can be in excess of 200 feet tall, 14 feet in diameter and 800 years in age.

CONSIDERATIONS:

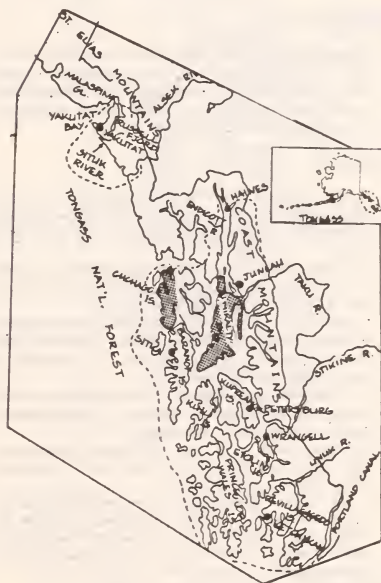
Protection of the finest wilderness in the Tongass National Forest has been overlooked for too long. While the Tongass is the largest most pristine National Forest in the U.S., it has 0 acres of designated Wilderness. However, logging and related development activities have already impacted nearly 3 million acres.

It is appropriate that the Congress is considering Tongass Wilderness proposals as part of the Alaska National Interest Lands legislation. The areas proposed are unique in North America and have unquestionable "national interest" values. For example, Admiralty Island is home to the highest density of brown bears in Alaska and the greatest concentration of nesting bald eagles in the world; the Yakutat area is one of the highest salmon producers in Alaska; Misty Fjord's deep fjorded inlets with spectacular granite cliffs rising 2,000 to 3,000 feet out of the sea are one of the scenic climaxes in the world; the outer coastal island complex of West Chichagof-Yakobi Island is a prime area in southeast Alaska for whales, sea otter and sea lion.

Forest Service testimony before the subcommittee in July

Indicated there will be no job loss within the timber industry if the Wilderness proposals are enacted into law by the Congress. Protecting the forested areas will also not affect the nation's supply of lumber since most of the wood from the Tongass is exported to Japan.

Statements regarding the mineral resources of these areas are misleading and not conclusive. The high costs of development activities in Southeast Alaska plus the inaccessibility to markets make proposals for the mining of anything but high grade, competitively sized deposits speculative ventures, at best. There is little evidence that



Southeast Alaska, including the areas proposed for Wilderness, contains these kind of superior deposits. Despite all the recent publicity given the molybdenum claims on the mainland east of Ketchikan, no firm data has been provided on the quality or the quantity of the find.

ALASKA COALITION RECOMMENDS:

Congressional Wilderness designation of Admiralty Island, West Chichagof-Yakobi Island, Yakutat, Stikine-Leconte, Endicott River, and the Misty Fjords and Congressional Wilderness Study designation of Tebenkof Bay, Duncan Canal, Karta River, and Etolin Island.

Admiralty Island

WILDERNESS PROPOSAL

LOCATION:

Southeastern Alaska; nine miles south of Juneau.

GEOGRAPHY:

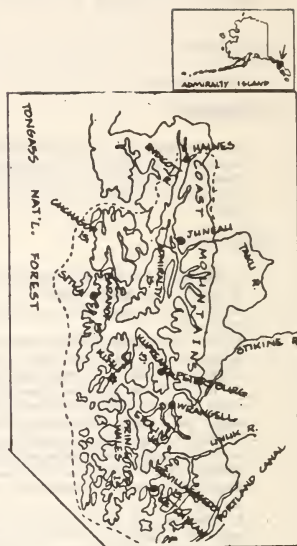
Forming the head of the Alexander Archipelago, Admiralty Island is 96 miles long and an average of 25 miles wide; the island system embraces forest, muskeg, beach grasses, meadows, brush, and alpine tundra, interspersed with numerous streams and lakes.

RESOURCES:

1. 67 classified salmon streams produce over 2 million fish annually which are important to fishing industry and critical to maintaining large resident bear and eagle populations.
2. There are more bald eagles on Admiralty than in all the rest of the U.S., averaging over one nest per mile of coastline; a total of 893 nests has been recorded.
3. Reputed worldwide to be one of the finest brown/grizzly bear populations in Alaska; survival of healthy populations is generally agreed to depend on preservation of large tracts of natural habitat.
4. Productive fish and wildlife areas support the continuing subsistence economy of Angoon, a Tlingit Indian village on the west coast of the island.
5. Other wildlife values include Sitka deer, migrant waterfowl, and small furbearers on the island; humpback whales frequent coastal lagoons.
6. The island's famous wilderness and wildlife values have attracted fishermen, hunters, and boaters from all the world; easily accessible from Juneau, its network of inland waterways, coastal bays, and wild forests provide diverse recreational opportunities.

CONSIDERATIONS:

1. Admiralty Island is the last large island in Southeast Alaska without any major logging or commercial activity.
2. Approximately 23,000 acres have been selected on the west side of the island by the village of Angoon in accord with ANCSA.
3. The village of Angoon recommended a NPS Wilderness Preserve for the entire island to protect the traditional lifestyle of the village; HR 5605 incorporated their recommendations.
4. Sealaska have made selections in the center of the island, the validity of which has been challenged; the USFS is evaluating alternative sites appropriate for selection.
5. Until recently, all the island's forests were included in



a 50 year contract of Champion Paper. The company withdrew from the contract last year and now the Administration has proposed statutory wilderness for 700,000 as also contained in the Subcommittee Print.

ALASKA COALITION RECOMMENDS:

The value of Admiralty as an outstanding wildlife resource is dependent upon preservation of the island's wilderness character. It is the last large island to remain intact; therefore the entire island should be made Wilderness as proposed in HR 39 and HR 5605, deleting the Mansfield Peninsula NRA proposal of the Subcommittee Print. Other proposals in Subcommittee Print incorporated from HR 5605 should be retained.

Misty Fjords

WILDERNESS AREA PROPOSAL

LOCATION:

The Misty Fjords area encompasses the southernmost portion of the mainland in Alaska. It is approximately 275 air-miles south of Juneau.

GEOGRAPHY:

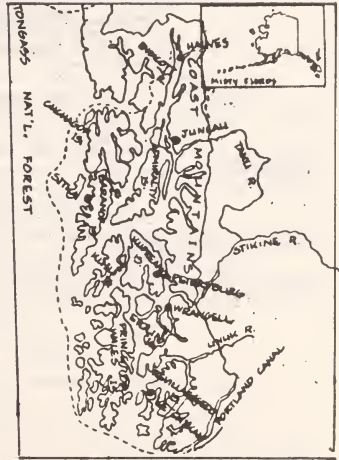
High peaks and glaciers of the Coast Range, gentle lowlands, thick forest lands, muskeg, wave-beaten rock, sand beaches and narrow fjords comprise this wilderness proposal.

RESOURCES:

1. The Misty Fjords area is a major producer of all five species of Pacific salmon and is especially important for king salmon. Of the 2,000 salmon streams in southeast Alaska, fewer than 20 support king salmon. Misty Fjords supports $\frac{1}{4}$ of the Alaskan king salmon.
2. Dolly Varden char, cutthroat, rainbow and steelhead trout abound in the streams and lakes. In the salt water are halibut, rock fish and red snapper. Crab are also easily caught in many parts of the area.
3. Moose, which are rare in southeast Alaska, occur in the area as well as deer, mink, the great brown bear, and grizzly abound in the mainland, along with black bear, wolves and mountain goats.
4. Birds that feed and nest in the Misty Fjords include ducks, geese, gulls, loons, shorebirds, grouse, ptarmigan, eagles, falcons, hawks and many songbirds.
5. Some cliffs in the proposed Misty Fjords Wilderness jut 3,000 feet out of the ocean. The area has been compared to the Sierra Nevada country.
6. Fjords snake their way back into the hemlock forests and saw-toothed mountains characteristic of the Misty Fjords proposal.
7. Lava flows and active mineral springs in the Blue Lake and River area of the upper Unuk are geologic landmarks.
8. Ruins of Indian villages with Totem poles, petroglyphs and pictographs, riddle the area.

CONSIDERATIONS:

1. The Forest Service has no comprehensive plan for the area as a whole, though the Walker Cove-Rudyerd Bay area has been labeled a "wilderness study area."
2. There have been proposals for mineral developments in the Misty Fjords area. The most serious of these is the potential molybdenum mine between Boca de Quadra and Smeaton Bay. The final Environmental Impact Statement, released in July 1977, which proposed to allow sampling of the minerals and construction of docking facilities, shelters, and a road, was considered inadequate

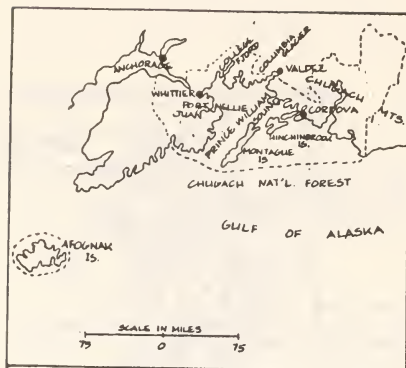


by the Council on Environmental Quality. The Council further suggested that other methods of access to the area be investigated, as the proposed road poses serious environmental threats.

ALASKA COALITION RECOMMENDS:

Wilderness status should be given to the Misty Fjords area. Potential Wilderness should be considered for areas affected by the possible molybdenum mine until it is determined if the area is feasible to develop.

Nellie Juan WILDERNESS



LOCATION:

Chugach National Forest. Western and northwestern portion of Prince William Sound, above the Gulf of Alaska. 80 air-miles southeast of Anchorage. Includes the islands, bays, and fjords in the Nellie Juan, College Fjord, and Columbia Glacier area.

GEOGRAPHY:

Islands covered with alpina meadows and scattered spruce forests rise from the clear waters of Prince William Sound to several thousand feet. Fjords and narrow passages separate islands from one another and from the adjacent heavily glaciated mainland.

RESOURCES:

1. Humpback, sperm, mink, and killer whales and porpoises are seen here in numbers as frequently as anywhere on earth.
2. Large pods of sea otters, often with the pup clinging to

the belly of the mother, can be easily approached.

3. Tufted puffins are widespread, as well as other birds in numbers, including murrelets, eagles, kittiwakes, hawks, shorebirds, and migrating waterfowl.

4. Squirrels, mink, deer, river otter, and black and brown bears frequent the beaches and meadows.

5. Five species of salmon spawn in the area; sea and rock bass and halibut are among the other fishes.

6. Approximately two-thirds of the scenic ferry route between Whittier and Valdez would be protected in the northern portion of the proposal.

7. The area offers exceptional opportunities among the quiet islands and inlets for the recreationist, kayaker, and sailboat enthusiast.

8. Camping and fishing are also popular and increasing, since waters about Anchorage in Cook Inlet are heavily silted, with severe tides, and not suitable for any of these activities.

9. Animal observation is almost constant.

CONSIDERATIONS:

1. The planning unit which encompasses the northern portion of this proposal is being studied separately by the Forest Service without overall consideration of its values in relation to the rest of the Forest, or the nation as a whole.

2. The southwestern portion of the proposal, except for some of the fringing islands, is at present a Forest Service Wilderness Study Area.

3. With Valdez being the southern terminus of the Alyeska pipeline, there will be much tanker traffic in eastern Prince William Sound. Wilderness protection, in addition to providing nondeveloped recreational uses, will help protect habitat important to commercial fisheries of Cordova and Seward and to aquacultural projects such as the one on nearby Evans Island.

The Alaska Coalition supports the Subcommittee Print as designating NELLIE JUAN WILDERNESS. This is a significant expansion of the Forest Service proposal and includes a far greater diversity of resources.

Stikine - Le Conte

WILDERNESS AREA



LOCATION:

On the mainland (southeast panhandle), 10 miles north of Wrangell, approximately 150 air-miles south from Juneau.

GEOGRAPHY:

The Stikine River rushes through a glacier-carved valley. Coastal range, fjords, the Le Conte glacier.

RESOURCES:

1. The Stikine Flats are singularly important because here, at the mouth of this powerful river, is the largest estuarine/tideflat ecosystem in southeast Alaska.
2. Hundreds of thousands of waterfowl migrating along the Pacific flyway between the Arctic and all parts of the western hemisphere depend each year on the Stikine Flats for food, shelter and rest.
3. For some birds, like the snow geese, this area is their only major stopping place in southeast Alaska.
4. The area in general supports mountain goat, moose, brown and black bear, deer, wolf, wolverine, otter, marten, mink, beaver and various smaller mammals. Birds include hawks, bald eagles, ducks, geese, swans and various song birds.
5. Fish include rainbow, cutthroat, brook trout, Dolly

Varden and steelhead. All five species of Pacific salmon migrate up the Stikine River on their way to spawning areas in Alaskan and Canadian waters.

6. The Stikine River is highly popular among Wrangell residents, as it is just a 30 minute ride by small motorized boats or a couple hour paddle by nonmotorized boats from Wrangell to the area.

7. Wrangell residents depend on the Stikine River for high quality fishing, hunting and other wilderness experiences.

8. Private and commercial float trips down the Stikine River are now a regular occurrence each summer.

9. The river corridor is a spectacular recreation area. Glaciers and peaks rise from the water forming magnificent fjords.

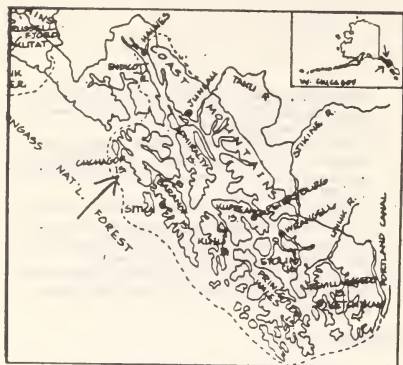
CONSIDERATIONS:

1. The Forest Service presently has no definite plans for the area.
2. The Stikine is presently a popular fishing and recreation area for local residents. Motor boats are used for access. Wilderness designation for the area would not preclude these uses, as it allows for continuation of existing uses of motor boat and airplanes. The Stikine should be given wilderness status to adequately protect this wildlife, fish-rich and spectacularly beautiful area.

THE ALASKA COALITION SUPPORTS WILDERNESS DESIGNATION FOR THE STIKINE-LE CONTE AREA AS FOUND IN THE SUBCOMMITTEE PRINT.

West Chicagof-Yakobi

WILDERNESS AREA



LOCATION:

West Chicagof-Yakobi Island is just south of Glacier Bay National Monument about 50 miles north of Sitka, 100 miles west of Juneau. West Chicagof is the western third of Chicagof Island, connected by an 8 mile neck of land to the rest of the island. Yakobi Island lies north of West Chicagof Island.

GEOGRAPHY:

The west coast is a 65 mile stretch of rocky headlands, reef-protected inlets and murads of offshore inlets, directly exposed to the Pacific Ocean. Behind this ocean front is a 35 mile island passage of quieter, protected waters, connected by streams to a network of inland lakes. East, in the island's heart, there arises a 3,000-6,000 foot mountain range which presents evidence of recent, extensive glaciation. To the north and east is fjordland with wide streams and moist soils.

RESOURCES:

1. Weelth of Invertabrete marine life.
2. Sea mammals include porpoise, whales, seals, and otters.
3. Land mammals on West Chicagof are brown bear, Sitka black-tailed deer, mink, martens, squirrel and river otter.
4. Area may prove to be future brown bear refuge.
5. Birdlife include Bald eagles, many songbirds, ravens, crows, gulls, shorebirds, and ptarmigan. Geese, ducks, and swans cross the area during winter migration and some nest or winter there.
6. Large number of salmon streams where all 5 western species of salmon spawn. Cutthroat and rainbow trout and Dolly Verden char are plentiful in the lakes and streams.
7. The intricate network of coastal waters provides great opportunity and challenge for the boater, kayaker and canoeist. The highcountry attracts hikers, climbers, and photographers. Soaking in the hot springs is a well-remembered West Chicagof experience.

CONSIDERATIONS:

1. Mining is sometimes cited as a conflict in this area though no mining has taken place here since 1941. Mining ventures have not proven profitable in recent times on West Chicagof-Yakobi Island. Inspiration Development Company holds some active claims around Mirror Harbor, from which they hope to extract nickel. The deposits are poor grade and mineral extraction and concentration provide many severe environmental and economic hurdles. Inspiration's objective appears to be to insure their option to mine in the future. Wilderness designation would not foreclose that option as long as their claims remain valid.
2. West Chicagof-Yakobi Island is within the Alaska Lumber and Pulp Company's 50 year timber contract area. In 1971, the Forest Service agreed to defer timber harvest for a five year study period. An environmental Impact Statement, released in 1976, suggested that a line be drawn down the middle of West Chicagof-Yakobi so that timbering would be limited to the eastern side and undefined backcountry designation made for the western side. The Coalition believes this imaginary line is arbitrary. Regional Forester John Sandor's decision to accept this plan has been appealed.

THE ALASKA COALITION SUPPORTS WILDERNESS DESIGNATION FOR WEST CHICAGO-YAKOBI.

WILDERNESS PROPOSAL

ously scheduled this area to provide "timber sales and the 'Unit' 50-year sale. Presently they plan for the area's future, schedule in 1978. The Forest Service is to be let for construction of a road river (a road now exists) even though they deny intentions on the opposite shore. No environment was filled before the contract to build a roadless area was let.

er, there was large support from
mass designation for the Yakutat.

mass designation for the Yakutat.

SUPPORTS THE SUBCOMMIT.

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- A hand-drawn map of the St. Lawrence River area. The river is depicted as a winding line flowing from the top left towards the bottom right. On the north bank (top side), two locations are marked: 'HAWES' and 'JUNEAU'. On the south bank (bottom side), 'STIKING R.' is marked. Further down the river, 'ST. LAWRENCE R.' is labeled. At the bottom of the map, 'PORTLAND CANAL' is indicated. A small inset map at the top right shows the location of the study area within the 'YAN VAT' and 'POTOMAC' regions.



Duncan Canal

Wilderness Area Proposal

LOCATION:

Directly west and southwest of Petersburg; central Kupreanof Island.

GEOGRAPHY:

This area includes the drainage tributary to the northern half of Duncan Canal. These are generally low, forested hillsides interspersed with extensive muskeg.

RESOURCES:

1. The most important shrimp producing grounds in southeast Alaska. Also produces a considerable catch of Dungeness crab.
2. The second most important waterfowl area in southeast Alaska. Extensive tidal flats and wetlands, plus an important salt chuck all contribute to this area's wildlife habitat.
3. Excellent fishing for cutthroat, silver salmon, Dolly Varden and steelhead trout.
4. Deer and waterfowl hunting is very good.

CONSIDERATIONS:

The Forest Service has plans to develop 6800 acres of the proposed Wilderness for timber production. Public comments on the draft EIS for this project favored no logging within the proposed Wilderness.

S. 1500 proposes Wilderness and Committee Print #2 of HR 39 proposes Wilderness Study for Duncan Canal.

ALASKA COALITION RECOMMENDS:

WILDERNESS DESIGNATION FOR DUNCAN CANAL

Tebenkof

Wilderness Area Proposal

LOCATION:

Central Kuju Island, 45 miles southwest of Petersburg and 50 miles southeast of Sitka.

GEOGRAPHY:

Tebenkof Bay is an extremely large bay off of Chatham Strait which contains a number of small bays within it. Many small islands and rocks stud the waters of this system of bays. The arms of Kuju Island that reach out into Tebenkof Bay are generally low and gentle in topography.

RESOURCES:

1. The most important fish and wildlife area on Kuju Island. Popular among commercial fishermen. The proposal includes the outstanding sport fishery of Alecks Creek.
2. Tebenkof Bay is a key waterfowl habitat area. Trumpeter swans make use of Alecks Lake; some areas are used by seabirds and waterfowl for nesting and molting in summer or early fall; and many birds winter in the area. Bald eagles, grouse and great blue heron are among the many bird species present.
3. Some parts of the Tebenkof area are used intensively by bear; the high black bear population is still controlled by mostly natural conditions.
4. High recreational potential because of many anchorages and hunting and fishing opportunities.
5. The area also has great potential for such activities as canoeing, kayaking, diving, camping and photography.

CONSIDERATIONS:

The Forest Service has recieved written public Comments in favor of protecting the aesthetic and recreational values of Tebenkof Bay from such diverse organizations as the Petersburg Chamber of Commerce, the Petersburg Vessel Owners Association, the Petersburg and Stikine Conservation Societies, the Alaska Center for the Environment and Friends of the Earth. Some have proposed expanding protection to include Bay of Pillars, to the north, and the southwest arm of Kuju Island, to the south.

S 1500 proposes Wilderness.

Committee Print #2 proposes Wilderness Study for Tebenkof.

THE ALASKA COALITION RECOMMENDS:

WILDERNESS DESIGNATION FOR TEBENKOF

Etolin Island

Wilderness Area Proposal

LOCATION:

East of Prince of Wales Island, about 10 miles southwest of Wrangell.

GEOGRAPHY:

Etolin is one of the few undeveloped islands remaining in the Alexander Archipelago. Several mountain chains, many small mountain lakes plus large lower lakes, and numerous stream systems exist throughout the island.

RESOURCES:

1. Etolin Island harbors the richest concentration of salmon spawning grounds of any of the islands in the Wrangell area and important estuarine areas which produce crab and other shellfish.
2. Big game species include black bear, wolf and deer. Mink, porcupine, marten, otter and beaver are among the non-game species.
3. Eagle nests are common along the coastline.
4. The grassy tidal flats at the heads of the bays and inlets are vital to many wildlife species including small furbearing mammals and wolves, as well as waterfowl and other birds.
5. The island is heavily used for wilderness recreation by Wrangell residents. Sport fishing, camping, hiking, beachcombing and photography are all experiences provided by the Etolin Island Wilderness.

CONSIDERATIONS:

The Forest Service assigned a wilderness quality rating to the island which exceeded those of over 80% of the Forest Services own wilderness study areas, nationwide.

The Forest Service is now studying the option of extensive timber sales throughout the northern end of the island. Some cutting has been permitted in Olive Cove, without preparation of an EIS.

S 1500 proposes Wilderness and Committee Print #2 of HR 39 proposes Wilderness Study for Etolin Island

THE ALASKA COALITION RECOMMENDS:

WILDERNESS DESIGNATION FOR ETOLIN ISLAND

Karta

Wilderness Area Proposal

LOCATION:

Forty miles west of Ketchikan, in central Prince of Wales Island.

GEOGRAPHY:

From the spectacular granite pinnacles of the Klawock Mountains on the west, the Karta drainage drops through spectacular waterfalls, through Salmon and Karta Lakes in a glacially carved valley to the tidal flats at Karta Bay.

RESOURCES:

1. Thousands of chum, coho, sockeye and pink salmon spawn in the Karta River drainage while the watershed abounds in Dolly Varden char and steelhead, rainbow, and cutthroat trout.
2. There is an abundance of fur bearers, including beaver, otter, marten, mink and weasel. Big game species include blacktail deer, black bear and wolf.
3. Salmon Lake is a fall and spring use area for trumpeter swans, some swans also winter there.
4. Sport fishing in Karta is outstanding and well-known in Southeast Alaska.
5. Opportunities exist for photography, wildlife observation and hiking.

CONSIDERATIONS:

The Karta River is on 3 Alaska Department of Fish and Game priority lists: it is one of the best sport fishing areas in the former South Tongass Forest; it is one of 30 watersheds in Southeast Alaska that have been proposed by the Alaska Department of Fish and Game since 1961 for management as "natural areas"; and it is one of the 18 "quality fishing waters" in Southeast Alaska proposed by the Sport Fish Division in 1972 for protection as undeveloped areas.

There has been no mining within the Karta River watershed since the days of the Flagstaff gold mine between 1931 and 1941. All that remains of this operation today are a few fallen buildings, some rusty machinery and mine tailings. Prospecting since 1941 has produced only unpatented claims in nine areas of the Karta drainage.

S 1500 proposes Wilderness for the Karta area.

Subcommittee Print #2 of HR 39 proposes Wilderness Study for Karta

ALASKA COALITION RECOMMENDS:

WILDERNESS FOR THE KARTA DRAINAGE.

Endicott River

National Park Wilderness Area Proposal

LOCATION:

On Chilkat Peninsula, 30 miles south of Haines and 40 miles northwest of Juneau, bordered on the west by Glacier Bay National Monument. Currently part of the Tongass National Forest.

GEOGRAPHY:

Encompasses the only gentle, broad pass through the rugged Chilkat Range, at the headwaters of the Endicott River, making it important to game migration. Was the only place in which neoglacial ice spilled from Glacier Bay to Lynn Canal.

RESOURCES:

1. Provides habitat for moose, mountain goat, wolves, brown and black bear and deer.
2. The Endicott River is a key nesting and breeding area for waterfowl; as well as excellent marine habitat at the mouth of the river.
3. Major salmon producer, contributing to the Juneau area saltwater sport and commercial fishery.
4. Recreational access into the spectacular Chilkat Mountains, a popular hunting area. Also potential access into Glacier Bay National Monument.

CONSIDERATIONS:

The Forest Service has no specific plans for this area presently. The original version of HR 39 and S. 1500 propose transfer of the Endicott River from the Tongass National Forest to the proposed Glacier Bay National Park, as a Wilderness area.

Committee Print #2 of HR 39 proposes simply National Forest designation.

THE ALASKA COALITION RECOMMENDS:

ENDICOTT RIVER SHOULD BE A WILDERNESS AREA, within the Glacier Bay National Park because of its geographical proximity and importance for game access to the proposed Park.

Situk

Wild River Proposal

LOCATION:

On the Gulf of Alaska, 8 miles east of Yakutat, flowing from the Russel Fjord Wilderness Study Area.

GEOGRAPHY:

Gently sloping terrain with a diverse range of riparian vegetation and notable pool and riffle complexes, important to fish and wildlife.

RESOURCES:

1. Finest spring and fall steelhead runs in Alaska; outstanding Dolly Varden fishing; all five species of Pacific salmon.
2. Trophy size moose, bald eagle nest along the entire length of the river.
3. From Mountain Lake to Forest Highway #10 is some of the best brown bear habitat in Alaska.
4. The Situk is well known for float-type fishing trips and accessible Forest Service recreation cabins.

CONSIDERATIONS:

The Forest Service has no specific plans for the Situk at present.

S. 1500 and the original HR 39 propose Wild River designation.

Committee Print #2 of HR 39 proposes Study River designation of the Situk.

THE ALASKA COALITION RECOMMENDS:

WILD RIVER DESIGNATION FOR THE SITUK RIVER.



Southeast Alaska Conservation Council, Inc.

BOX 2778

JUNEAU, ALASKA 99803

907-586-6942

THE MISTY FIORDS FOREST IS NOT NEEDED BY THE TIMBER INDUSTRY

The area proposed for the Misty Fiords wilderness is not now in any Forest Service logging plan. There is a very good reason why the Forest Service has not looked to this area to supply the Ketchikan area's timber requirements; 74 percent of the timber volume in Misty Fiords is either marginal or unregulated (30% is marginal and 44% is unregulated). Unregulated timber cannot be cut under any conditions and the marginal stands are uneconomical using current technology.

On Prince of Wales Island, where Louisiana-Pacific's timber cutting operations are intensified, the percentage of marginal/unregulated stands is only 10-15 percent. Neither the Forest Service nor the industry have strong desires to operate in the Misty Fiords area. Not only is the timber uneconomical but productivity is low due to the shallow gravel soils that occur on the mainland and the cold glacier air flowing over the area.

Instead of offering timber sales in the Misty Fiords, the Forest Service has sold Louisiana-Pacific timber from the Stikine area, north of the Ketchikan area. Today Louisiana-Pacific is operating in four places in the Stikine area. It is far more economical to raft logs a few more miles than to cut in areas with excessive logging costs, like the Misty Fiords. Louisiana-Pacific will continue operations in the Stikine area, as planned by the Forest Service.

John Sandor, Regional Forest for Alaska, pointed out in testimony on July 19, 1977 that the industry is cutting less than one half of the total annual potential yield of timber (550 million board feet out of a potential 1,224 million board feet a year) in the Tongass National Forest. Mr. Sandor indicated that there is flexibility for timber cutting operations and that there is plenty of room for significant wilderness protection, like that proposed in H.R. 39 which includes Misty Fiords.

Southeast Alaska Conservation Council, Inc.

BOX 2778

JUNEAU, ALASKA 99803 907-586-6942

February, 1978

SEACC

PHIL HOLDSWORTH'S MINERALS ASSESSMENT

A recent report titled, "Mineral Assessment of Southeastern Alaska on the Tongass National Forest", by Phil Holdsworth is misleading and contradictory. The report asserts that mining development should occur in the location of three highly publicized areas on Admiralty Island, Yakobi Island and in the Misty Fjords. Information available which doesn't support this conclusion was ignored.

For instance, the report failed to state that the Yakobi Island nickel-copper deposit contains only about .36% nickel and .26% copper, figures estimated by the Bureau of Mines in 1943 and uncontested by the recent holder of the mining claims, Inspiration Development Co. This ore quality is submarginal falling short in average metal content by a factor of 4 or 5 of what would presently constitute a commercial grade deposit. Furthermore, the estimated 160 million lbs of nickel reported by Holdsworth compares very unfavorably with reserves of more than 600 billion lbs found at Canadian nickel mines. The Holdsworth report overlooked this data which shows that the Yakobi Island deposit is unimportant to nickel supplies and uneconomical.

The Noranda mining claims in the Greens Creek area of Admiralty Island appear to be even more speculative and insignificant. After several years of exploration, ore reserves, according to Holdsworth, are estimated to be only 2.5 million tons. Although, the company hopes to find a larger deposit, it is clear that a major discovery is not there. Also, the ore would have to be extremely high in grade to cover the relatively steep costs of mining and milling a small deposit of a multi-mineral ore in Southeast Alaska. No estimate of ore grade is provided in the Holdsworth report.

The mineral assessment also does not present data on the ore quality of Borax's quartz hill molybdenum claims. Other mineral engineers have estimated that the ore grade there could be as low as .18% which does not compare well with a .4% at the new Henderson moly mine in Colorado and with a 1% ore grade found at the Climax Mine, also in Colorado. Holdsworth does not allude to the fact that to compete, Borax will need a higher grade of ore.

According to Holdsworth, Borax's 1977 claims enlarged the area of the deposit sufficiently to change the boundary for exclusion from Wilderness in the Subcommittee print. A close look at these recent claims shows that they follow a corridor to the Blossom River, which Borax prefers as access to its claims. This access is opposed by fishermen and the Alaska Department of Fish and Game who fear that development in this drainage will significantly impair the salmon spawning in the Blossom River, which is one of the most productive salmon producers in Southeast Alaska. This area should not be excluded from the Wilderness boundary, as Holdsworth proposes.

Holdsworth's cost estimates of proposed mines are unrealistically low. Environmental costs, state and local government costs for public services and the higher costs, in general, of mining in Alaska were not taken into account. If all the real costs are evaluated, only the very highest grade competitively sized deposits would have any likelihood of providing development that is in the public's best interest. And in the Quartz Hill area, regardless of ore grade and quantity, this may not be possible if the cost of damaging a productive salmon run worth millions of dollars a year to fishermen is taken into account.

There were also several contradictions in Holdsworth's cost data. For example, the cost to build a molybdenum mine and plant at the Borax site is estimated by Holdsworth to be \$260 million, which is significantly less than the \$400 million needed to construct the Henderson molybdenum mine in Colorado which was started more than 10 years ago and which was planned for less capacity than the 35,000 tons per day that Holdsworth says Borax is contemplating. Holdsworth also predicted that the cost of a mine plant for a Yakobi Island mine operating at 4600 tons/day and a Quartz Hill mine operating at 35,000 tons/day is the same, which cannot be correct. The low cost figures stated for an operation at Greens Creek do not take into account that the deposits are narrow and spread out, requiring a very expensive tunneling operation for extraction.

Since none of the minerals discussed by Holdsworth are in short supply nationally, there is no need to mine them in Southeast Alaska. Knowing this, Holdsworth attempts to justify minerals extraction in Southeast Alaska by using the argument that the country's balance of payments will improve, since the likely buyer of Alaska minerals is Japan. Holdsworth did not consider that the nation's balance of payments will not be affected positively, if Alaskan mineral exports to Japan enable the Japanese to be more competitive with American manufacturers of steel and other finished metal products.

Southeast Alaska Conservation Council, Inc.

BOX-2778

JUNEAU, ALASKA 99803

907-586-6942

OCTOBER, 1977

SEACC

LOW TIMBER VOLUME IN PROPOSED SOUTHEAST ALASKA

WILDERNESS STUDY AREAS

The Alaska Subcommittee staff proposed wilderness study for the following four areas in the Tongass National Forest:

1. Etolin Island
2. Karta River
3. Tebenkof Bay
4. Duncan Canal

Estimates for the amount of commercial forest land in each of these areas is provided in the recent Forest Service hand-out titled "Alternatives for the Tongass". These estimates are shown below:

1. Etolin Island	-	69,500	acres of commercial forest land
2. Karta River	-	27,000	" " " " "
3. Tebenkof Bay	-	47,180	" " " " "
4. Duncan Canal	-	51,310	" " " " "

On the average the Forest Service estimates that one acre of commercial forest land in the Tongass can yield 155 board feet per year. Using this figure the annual potential yield of timber for these four areas is calculated to be only 30.2 million board feet per year.

30.2 million board feet per year is two percent of the total potential yield in the Tongass which is 1,224 million ~~million~~ board feet per year. (according to John Sandor's July 19 testimony) The potential yield of the four proposed wilderness study areas added to the potential yield estimated for the wilderness proposals in HR 39 equals 250.2 million board feet per year (based on Sandor's testimony again), 20 percent of the potential yield in the Tongass National Forest.

The logging industry in Southeast Alaska is currently cutting less than 500 million board feet per year. The level of timber cutting added to the potential yield within the areas proposed for wilderness/study equals 750 million board feet. Remaining is 474 million board feet (1224 minus 750) of potential yield which can be used for industry growth, native claims and more land protection. There is plenty of flexibility in the Tongass timber resources to provide for more wilderness and wilderness study areas without affecting the jobs now supplied by the industry.



Southeast Alaska Conservation Council, Inc.

BOX-2778

JUNEAU, ALASKA 99803 907-586-6942

SOUTHEAST ALASKA WILDERNESS

AND THE COMMERCIAL FISHING INDUSTRY

The Alaska National Interest Lands Conservation Act, HR 39, would protect some of the most important fish-producing areas in the United States. Southeast Alaska currently produces at least 40% of the total weight of salmon caught in Alaska, and Alaska is the source of about four-fifths of the total U.S. salmon harvest. An estimated 4,280 full and part-time fishermen in Alaska earned an average annual income of \$22.3 million between 1970 and 1974. An average of 2,121 people are employed by fish processors in Alaska each year.

Among the most important factors influencing the survival and growth of this industry are the following conditions: (1) maintenance of natural spawning and rearing habitat in freshwater systems and (2) enhanced fish production through aquaculture. HR 39 would provide for both.

Protection of Fish Habitat

The construction of roads and harvest of timber in southeast Alaska has been a documented source of fish habitat destruction. We cannot hope to maintain the present fishing industry (to say nothing of providing for growth in the industry) if the best streams and estuaries in southeast Alaska are continually degraded or destroyed.

HR 39 would designate 11 areas for Wilderness, Wilderness Study or Wild River Study, including some of the most important fish-producers in Alaska. Of all the salmon streams in southeast Alaska, only about 1% have king salmon, the most valuable salmon species. HR 39 includes over half of these king salmon producers. Here are a few of the outstanding southeast Alaska streams, with runs over 50,000 and about \$1 million annual value; Admiralty Island - 187 salmon streams, with potential production of well over 2 million fish annually; Etolin Island - first proposed for Wilderness status by the Wrangell Commercial Fishermen's Association because it has the highest concentration of salmon spawning grounds of any of the islands in the Wrangell area; Duncan Canal - the most important shrimp producing area in southeast Alaska, plus 29 anadromous fish streams; Stikine River - all 5 salmon species and over 50,000 annual escapement; Misty Fjords - contains about one-fourth of all king salmon streams in southeast Alaska.

Allowance for Aquaculture

HR 39 would allow fish stocking and aquaculture facilities in National Forest Wilderness areas in Alaska. These facilities would be primarily in the estuaries and streams themselves (such as rearing pens, for example). Temporary housing for personnel or equipment would also be allowed.

Note: Commercial fishing is allowed in all salt water areas adjacent to Wilderness areas.



Southeast Alaska Conservation Council, Inc.

BOX-2778

JUNEAU, ALASKA 99803 907-586-6942

October, 1977

SEACCO

ADMIRALTY ISLAND--A GREAT AMERICAN LEGACY

For over 70 years Americans have discovered the great natural legacy that is Admiralty Island in Southeast Alaska. The Island is home to 1,000 huge brown bears, the highest density of brown bears in Alaska, except for Kodiak Island. The greatest concentration of nesting bald eagles in the world lies along the Island's shorelines. The bald eagle population is estimated to be 5,000. Both the bald eagles and brown bears seasonally depend upon some of the richest salmon runs in Alaska. The salmon spawn in 187 of the Island's streams and rivers. The bays of Admiralty Island are the favorite spots in Southeast Alaska for the migrating humpback whale.

Preservation of this unique Island resource has become a national goal. Admiralty is proposed as wilderness in H.R. 39 and H.R. 8651 which are sponsored by several Congressmen. At the hearings on Alaska land legislation this year, Admiralty Island was supported more than any other Alaska wilderness proposal. The Tlingit people of Angoon are in favor of protecting their cultural and subsistence heritage through wilderness designation of the Island. Recently, the Carter Administration announced its position that Admiralty Island should become a part of the Nation's wilderness preservation system.

Admiralty Island provides the Congress with an opportunity to protect a whole natural system--an entire island. In order to guarantee that all the Island is protected, the Congress must correct an administrative decision made by Secretary of the Interior Kleppe and take advantage of an offer made by the native people of Angoon.

Through an administrative decision, Secretary Kleppe allowed two urban corporations, formed pursuant to ANCSA, to select land within the Tongass National Forest up to 50 miles away in the case of Sitka, and up to 62 miles in the case of Juneau. This action resulted in land selection by the urban corporations in the heart of Admiralty Island near Angoon. The Secretary gave the urban corporations these large selection areas, despite the clear directive in the Act to keep optional urban corporation land selections in "reasonable proximity to the urban centers."

The urban corporations of Juneau and Sitka claim no aboriginal rights to the timber lands they seek nor do they claim historical, traditional or any other ties to these lands. They instead claim economic reasons for their quest of timber on Admiralty Island. If these selections are allowed, the Village of Angoon will be surrounded by large blocks of absentee-owned timber land. If these lands are logged, as intended by the urban corporations, destruction of some of the best salmon, bald eagle, and bear habitat on the Island will result.

To avert these consequences, the Congress should direct the Secretaries of Interior and Agriculture to find lands of equal value elsewhere in the area, but not on Admiralty Island. John Sandor, the Alaska Regional Forester, clearly indicated in his July 19 testimony that there is plenty of timber in the Tongass to satisfy all user needs, including wilderness proposals like those in H.R. 39, along with industry demands, native selections, and implementation of new policies to protect fish and game.

In hopes of insuring forever the wilderness integrity of Admiralty Island, the Angoon village native corporation, Kootznoowoo, Inc., has made an offer to the people of the United States. The Angoon people propose that the Federal Government trade timber with them. The proposal would give the American people ownership of the timber on Kootznoowoo's land selection in Kootznahoo Inlet and Mitchell Bay in exchange for the right by Kootznoowoo to cut timber elsewhere in the Tongass National Forest. The agreement would allow the government to manage the entire Admiralty Island in a manner that would preserve the land in its natural state.



SEACC

Southeast Alaska Conservation Council, Inc.

BOX 2778

JUNEAU, ALASKA 99803

907-586-6942

202-547-1144

November 1, 1977

Statement of Concerns with Tongass Planning Process

The following are some of the constructive suggestions that have been made by SEACC at various occasions in the past. They are certainly not a condemnation of the planning process as a whole. SEACC has expressed many times its view that the current planning efforts in the Tongass are a great improvement over past efforts.

1. A FS decision to open millions of acres of roadless areas to development is contemplated for January. SEACC would consider such a decision to be a violation of NEPA. The wilderness resources of the Tongass Forest were never studied during RARE I. (A map of the roadless areas was prepared instead.) By January, RARE II will have been in process for only one field season. While such a review enables us to "spotlight" wilderness proposals of readily identifiable values, it is much too cursory to allow the FS to identify up to 8 million acres of roadless areas that will no longer be considered for preservation. Instead, SEACC has proposed that all roadless areas be designated as wilderness study areas with the following exceptions: (1) instant Wilderness proposals in § 1500 (Alaska National Interest Lands Conservation Act) should be proposed by the FS for instant Wilderness designation; (2) sufficient timbered lands outside of the 45 SEACC proposals should be made available to meet the needs of industry during the course of the studies. Only this process will allow the FS to properly identify the best lands to fill its 5 - 7 million acre goal for permanently unlogged lands in the Tongass. We maintain that a separate EIS is required before development of each specific roadless area.

2. The FS has not made clear to the general public the implications of its proposed range of timber harvest from the Tongass (535 - 660 mmbf). The estimated annual harvest from Native and State lands in southeast Alaska is 100 - 150 mmbf. Added to the 535 - 660 mmbf projected for the National Forest, this means that 635 - 810 mmbf will be harvested from a forest which now supports an average harvest of 535 mmbf. The FS is thereby proposing as much as a 40% increase in timber harvest in southeast Alaska.

3. The FS maintains they support some instant Wilderness designations for the Tongass and yet they have weakened the efforts of the House of Representatives to do just that. Even though the instant Wilderness areas proposed by HR 39 are among the most well known, widely supported and oldest proposals in southeast Alaska, the FS maintained in September that its planning process was too rigid to permit the Administration to make recommendations on these until January.



Southeast Alaska Conservation Council, Inc.

BOX 2778

JUNEAU, ALASKA 99803 907-586-6942

SEACC

Misty Fjords - the East Revilla Segment

The East Behm Canal is the focal point of the Misty Fjords wilderness experience for almost all boaters who use the area today. To the boater, visiting Misty Fjords is almost synonymous with boating the East Behm Canal. This is because the East Behm Canal is the only thoroughfare for visitors to the northern and central segments of the Mist Fjords area, besides air access.

The boating experience in the East Behm Canal is characterized by isolation, silence and confinement. Any human presence other than kayakers is readily noticeable from great distances up and down the Canal. Only by including the east side of Revillagigedo Island within the Misty Fjords Wilderness Area can the wilderness quality of the Misty Fjords as a whole be maintained.

The east side of Revilla Island is highly popular in its own right among visitors to the East Behm Canal. On the northeast tip of the island is the glacier-carved U-shaped valley of Cow Creek, whose dramatically steep walls rise to snow-clad peaks rivaling the magnificence of those on the nearby mainland. Coming south along the East Behm Canal one finds a series of hanging lakes with long waterfalls cascading into the Canal. Toward the center of the eastern side of Revilla Island the topography becomes more gentle, with large, safe anchorages such as the popular Manzanita Bay. At the southeast corner of the island is Alava Bay, used by most boaters between Ketchikan and Misty Fjords due to its good mooring and camping areas, excellent fishing and safe refuge from the frequent turbulence of Point Alava.

Lake Grace (on Revilla Island immediately across Behm Canal from the Walker Cove-Rudyard Bay Scenic Area) has been studied and rejected as a hydroelectric site for the city of Ketchikan. In July, 1977 the Ketchikan City Council and the Ketchikan Public Utility board decided to seek construction of an alternate hydroelectric facility, at Swan Lake. The Lake Grace project would have cost an estimated 20 million dollars more than the Swan Lake project. As it is, the Swan Lake facility will be at least 10 times more expensive than any project in Ketchikan's history. The Swan Lake dam will not only eliminate the need for other energy sources (diesel power is now used); it will be actually produce a surplus of electricity that will be difficult to find a market for, at least until 1989. The Lake Grace project is not necessary or desirable in the foreseeable future. If, however, it should become so, decades from now, the President is authorized by the Wilderness Act to allow such a facility within the Wilderness.



Inspiration Consolidated Copper Company

Suite 1870, First National Bank Plaza

100 W. Washington St.

Phoenix, Arizona 85003

(602) 258-4561

STATEMENT

of

H.R. 39, Alaska National Interest Lands Conservation Act

before the

Oversight and Alaska Lands Subcommittee

of the

House Committee on Interior and Insular Affairs

for

Inspiration Consolidated Copper Company

by

Jack Pursley

June 18, 1977

I am Jack Pursley, geologist and Public Affairs Coordinator, representing Inspiration Consolidated Copper Company. I wish to thank you for the opportunity to appear before this subcommittee and present Inspiration's concerns about proposed legislation dealing with Alaska D-2 land withdrawals. We are especially concerned that H.R. 39, an Act alleging National Interest Lands, should ignore so completely, the national interest vested in the minerals of those same lands. It is our contention, and a very basic one, that the best interest of this generation, and future generations of Americans, will best be served if more than recreation and wilderness interests are considered.

Obviously, our Host on this planet is a very prudent Being. For the same powerful, inconceivable energies that rubbleized great portions of the earth's crust to allow conduits and traps for mineral concentrations venting from the earth's cauldrons, also provided the scenic values of our mountains, valleys, rivers and forests. The real and the esthetic were conceived as one. There is reason to believe that with planning, they can be utilized as one. We believe it is the responsibility of this subcommittee to reach for a plan that melds together and provides for the exploration and preservation of our diastrophic frontiers. We appreciate the task shouldered by

this committee and respectfully submit the following data regarding Inspiration Consolidated Copper Company's activities in Yakobi-West Chichagof Islands, which in no way can coexist with the "Designation of Wilderness Areas Within Units of the National Forest System", cited in paragraph (e), Section 604, Title VI, of the "Alaska National Interest Lands Conservation Act".

Inspiration Development Company, a wholly owned division of Inspiration Consolidated Copper Company, has been actively engaged, since 1972, in the development of nickel-copper-sulfide deposits on Yakobi-West Chichagof Islands, Alaska. Results of our investigations are threefold:

1. We have developed mineral deposits containing metals critical to our national economy and to our nation's proposed energy program.
2. The development of the nickel-copper deposits along with known occurrences of gold, silver, tungsten, moly and uranium, add definition to the mineral belts that extend from our western states, Alaska, through Canada and into Siberia.
3. Our exploration results augment, with the exception of Portlock Harbor, the U.S. Forest Service's conclusions stated in their, "Final Environmental Statement for West Chichagof-Yakobi Islands", transmitted February 26, 1976.

Yakobi-West Chichagof Nickel Deposits

In 1939, shortly before World War II, it was apparent that foreign sources of critical metals during times of national emergency could not be considered reliable. Congress addressed that situation with the Strategic Minerals Act of 1939, whereby the Secretary of Interior was authorized to investigate and develop new sources of strategic and critical minerals. Initiated by that Act, the USGS and Bureau of Mines

mapped and drilled the nickel deposits of Bohemia Basin (Yakobi Island) in the field seasons of 1940-41-42. Fifteen holes, totalling 5,187 feet, were drilled. Reserves of 20,800,000 tons were reported, (USBM report, RI 4182, 1948, "The Yakobi Nickel Deposit, Sitka Mining District, Alaska" - USGS bulletin 1223, "Nickel Deposits of North America"). Their discoveries were augmented by additional exploratory drilling by International Nickel Company in the early 1950's and, finally, drilling by I.D.C. from 1972 until present. Inspiration has drilled 59 holes, or a total of 22,344 feet, at an exploration cost of \$96.14 per foot of drilling - a total cost of \$2,148,148. Data has been generated from a grand total of 102 holes or 43,732 feet of drilling. From that data, it is calculated that approximately 160 million pounds of nickel, 80 million pounds of copper, and 8 million pounds of cobalt have been developed.

The United States has an annual primary production of about 16,000 tons (32 million pounds) of nickel and consumes more than 200,000 tons (400 million pounds) annually, about 1/3 of the world's production.

The total U.S. requirements of nickel for energy development and production, 1975-1990, are estimated at about 264,000 tons (528 million pounds). The nation's reserves of about 180,000 tons (360 million pounds) are only 69% of the total cumulated demand by the energy sector. Because the U.S. is importing nearly 85% of its annual requirements of primary nickel, or about 73% of all the nickel it uses, it is apparent that increased demand by the energy sector will pose a serious economic problem, (USGS Professional Paper, 1006-A,B, "Demand and Supply of Non-Fuel Minerals and Materials for the U.S. Energy Industry 1975-1990").

Preliminary studies indicated that development of the Yakobi deposit, in spite of its marginal grade, is economically feasible now, provided we could proceed without unreasonable delay or restrictions. Our preliminary estimate is that a 200 ton per hour plant would accommodate 2,000,000 tons of ore per year production, and would cost approximately 47 million dollars in today's prices. This deposit is unique only because it exists in the United States. There are comparable nickel-sulfide deposits being developed throughout the world. Several of these mines,

while reporting reserves nearly doubling our own estimates, contain grades of 0.2% and 0.18% nickel, or just a little over 1/2 of the contained nickel, as in the Bohemia Basin deposit. (Vunós Mine, Finland, and Great Lakes Nickel Deposit, Northwest Ontario)

The Yakobi-West Chichagof area has good potential for additional mineral deposits. Our 1977 field season is currently in progress. We normally field 35 personnel; however, because of the pending legislation, only 10 will be in Alaska this season. Their efforts will concentrate on evaluating other deposits in the Yakobi-Chichagof area. According to testimony provided by Wilbert Dare of the U.S. Bureau of Mines before the subcommittee on Indian Affairs and Public Lands, "These deposits could represent a major domestic source of nickel and our first important source of domestic cobalt."

Mineral Belts

In western North America, mineral belts occur within zones of major lineaments, i.e. major faults, alignments of volcanoes, etc., which reflect deep seated attitudes of major structural breaks in the earth's crust. These lineament zones are defined, for the most part, by the San Andreas lineament, a major fault in California, and by the Fairweather and Denali lineaments, which are major faults in Alaska. Generally, the lineament zones parallel the coast, trending north-northwest from California, British Columbia, the Yukon and Southeast Alaska, becoming arcuate in central and southwestern Alaska, and paralleling the Gulf of Alaska. Further major crustal movement along this trend has occurred where the oceanic crust has moved under the continental crust and such activity is also associated with emplacement of mineral belts. These disturbances are all part of tectonic activity, or structural deformation of the earth's crust. Zones of weakness, resulting from later tectonic activity, occur within these major lineament zones. Many important mineral deposits occur peripheral to these zones of weakness.

Generally, belts of older ultramafic rocks (rocks composed of ferromagnesium, dark-colored minerals) contain important nickel, copper and chrome deposits, and younger granitic rocks contain copper, molybdenum and tungsten deposits.

Methods discerning these lineaments are varied and undergoing constant refinement. They are more accurately defined throughout the western states and Canada, where exploration has been progressive, and the results can be combined with remote sensing techniques. In Alaska, however, the lineaments are much less refined. Each new discovery adds definition to the lineaments.

When these lineaments are plotted on a map of northwest North America, several things become readily apparent:

1. Plotted together with the known major deposits in British Columbia, the Yukon, and Siberia, they indicate the tremendous, relatively unscratched mineral potential of Alaska. Mr. A. C. Ogilvy, Manager of the Yukon Chamber of Mines, reports there are 1,600 known mineral prospects in the Yukon, and he estimates six will be major producers by 1980. Furthermore, information from the Alaska Bureau of Mines working with the University of Alaska, indicates there are currently 75 exploration and development projects in Siberia, i.e. 15 placer mines, 7 hardrock mines and 53 prospects in the exploration stage. Russia, in an attempt at mineral independence, is actively developing transportation corridors and deep water ports to accommodate their Siberian mineral program.
2. When compared with an overlay showing lands presently in single use systems (27 million acres), the additions proposed to those systems (114 million acres), plus five million acres of Forest Land . . . all to be designated wilderness, then the disastrous

effect on mineral development and the economy of Alaska is readily apparent. Access will be denied to known mineralized areas, known mineral deposits, and mineral trends. Consideration for transportation corridors will be severely hampered.

Environmental Impact Statement

Our exploratory efforts augment and, with but one exception, agree with the "Final Environmental Statement for West Chichagof-Yakobi Islands" prepared by the U.S. Forest Service and transmitted February 26, 1976. This statement was the result of a five year study by the Service to determine the most suitable land use for the Tongass National Forest. The West Chichagof-Yakobi Island area did not qualify for Wilderness designation. In that study, the land use decision was essentially multiple, with environmental controls. It was a very comprehensive study.

Following are excerpts from that Statement:

"West Chichagof-Yakobi Islands taken as a homogenous unit are capable of spatially absorbing visitor use without unduly compromising the factors of isolation and solitude. Several intrinsic intrusions, however, frustrate the supposition that the unit is untrammelled by man. Bohemia Basin, of Yakobi Island, is currently undergoing intensive mineral exploration. Attendant modifications to the natural environment are apparent, just as they are in the bays of Hoonah Sound, where in the past, extensive logging activity has taken place. The continued and uncontrollable presence of commercial and pleasure boats, and float-equipped aircraft, in the extensive and inseparable coastal waters of the unit, would not represent an appropriate level of solitude sought under the Wilderness Act."

"The acreage of Wilderness Study Areas in the Tongass National Forest now represents 11.3%. It is somewhat difficult to determine the exact need of additional wilderness, particularly in terms of the geographical qualities and experiences offered wilderness advocates within the existing National System."



The members of this subcommittee should be extremely concerned that H.R. 39 mandates land-use decisions that deny, restrict and otherwise hamper access to known mineral deposits, such as Yakobi-West Chichagof, and to mineral lineaments located between the highly productive areas of western Canada and eastern Siberia. The mineral shortages in this country are becoming critical; not because the mining industry will not explore for new reserves, but because the zealots are denying access to land where minerals are more likely to occur.

We must recognize the structure of our economy is tremendously dependent upon mineral supplies, and that currently we are becoming increasingly more dependent on foreign sources. We can solve that problem by hard work and production. Let us not run to wilderness.

[Materials submitted by Bob Armstrong, Alaska Department of Fish and Game.]

SUBMITTED BY THE ALASKA DEPARTMENT OF FISH AND GAME

Number of Freshwater Systems Considered To Be Of Special Importance To The Sport Fishery On Lands Affected By D-2 Proposals In Southeast Alaska.

Area	Quality sport fishing	Dolly Varden wintering	Steelhead	Rainbow	Cutthroat	King salmon
Wilderness:						
Endicott River.....	0	0	0	0	0	0
Yakutat forelands.....	5	20	1	0	1	9
Admiralty.....	11	3	1	0	10	1
West Chichagof-Yakobi.....	3	2	0	0	1	0
Stikine-Le Conte.....	0	6	0	0	1	1
Misty Fjords.....	6	9	2	2	4	11
Total, wilderness.....	25	40	4	2	17	22
Wilderness study:						
H.R. 39 bill:						
Duncan Canal.....	3	4	2	0	3	0
Etolin Island.....	2	2	1	0	0	0
Karta Lake.....	1	3	1	0	1	0
Tebenkof Bay.....	1	1	1	0	1	0
Subtotal, H.R. 39.....	7	10	5	0	5	0
Metcalf bill:						
Dall Island.....	1	8	0	0	1	0
Idaho Inlet-Mud Bay.....	1	1	0	0	0	0
Kadake Creek.....	1	0	1	0	1	0
North Kruzof Island.....	0	0	0	0	0	0
Pavlov Harbor.....	1	1	0	0	1	0
Rocky Pass.....	0	0	1	0	0	0
St. James Bay.....	0	0	0	0	0	0
Salmon Bay.....	1	1	1	0	1	0
Sarkar Lakes.....	1	5	1	0	1	0
Sweetwater-Honker Divide.....	1	5	2	0	2	0
Subtotal, Metcalf.....	7	21	6	0	7	0
Total, wilderness study.....	14	31	11	0	12	0
Wild and scenic rivers:						
Situk.....	1	0	1	0	1	1
Stikine.....	0	1	1	0	1	1
Total, wild and scenic.....	1	1	2	0	2	2
Miscellaneous:						
Alsek addition to Tongass.....	0	5	0	0	0	0
Alsek addition to G.B.....	2	0	4	0	0	1
Juneau Icefield.....	0	0	0	0	0	0
Kates Needle.....	0	0	0	0	0	0
Total, miscellaneous.....	2	5	4	0	0	1
Total, all areas.....	42	77	21	2	31	25
Rest of southeast.....	41	112	7	7	16	7
Total, all southeast.....	83	189	28	9	47	32

High Quality Sport Fishing Systems.—Systems identified by the Division of Sport Fish as providing an above average fishing experience in Southeastern Alaska. These systems contain sufficient numbers of one or more species to provide a high catch success—usually over 2 fish per angler hour. They all contain native fish, usually of above average or exceptional size. They are located

in an aesthetically pleasing setting. The waters contain a good number of "fishing holes."

Dolly Varden Wintering Lakes.—After the young sea-run Dolly Varden complete their rearing period in streams (2-4 yrs) they migrate to lakes for the winter each year. Each of these lakes may harbor many Dolly Varden populations coming from streams up to 50 miles from the lake.

Important Steelhead Systems.—Waters identified by the Division of Sport Fish as containing sufficient numbers of steelhead and fishing water to provide for "good" fishing. All systems have runs of over 200 fish and average about 500.

Important Rainbow Systems.—Waters identified by the Division of Sport Fish as providing "good" fishing for rainbow.

Important Cutthroat Systems.—Waters identified as containing sufficient numbers of cutthroat and fishing water to provide for "good" fishing. All systems contain over 1,000 cutthroat.

Chinook Salmon Areas.—Due to the importance of this species to the sport fishery, the depressed nature of the stock and the relatively few systems, all fresh waters containing chinook have been identified.

MARCUS F. JENSEN,

Juneau, Alaska, February 11, 1978.

Senator HENRY M. JACKSON,
Chairman, and Members of the Committee on Energy and Natural Resources
Washington, D.C.

GENTLEMEN: I would like to submit the following statement in regard to the d-2 land classification for Southeastern Alaska. I have lived in Alaska approximately 50 years and have guided for big game for over 35 years. I have held the post of chairman of the State Guide Licensing and Control Board since authorizing legislation was passed five years ago.

The state has about 450 registered guides and 500 assistant guides. In Southeastern Alaska we have 20 certified guides and of these 20 about 10 make a large portion of their income from guiding non-resident hunters for brown bear.

Regardless of what classification is made on lands in Alaska control and management of the fish and wildlife within the state by the state is essential. In Southeastern Alaska the habitat supports deer, moose, goat and brown and black bear. The animals we are most concerned with on Admiralty and Chichagof Islands are primarily deer and brown bear. Le Conte Glacier area has primarily goats and the Stikine drainage are primarily moose.

For years the U.S. Forest Service has had jurisdiction over that part of Southeastern Alaska which lies within the Tongass National Forest. They have approached the management of these large areas primarily on multiple-use concept. In my opinion they have done a reasonably good job.

It is my feeling that it is premature to classify the Southeastern Alaska lands at this time. The Forest Service has not completed its work, which now includes thousands of man-hours in compiling information on habitat, game, fish, timber and recreation. It seems to me that Congress should proceed in an orderly manner. By that I mean wait until basic information is completed and can be used intelligently in making the vital decision of what classification to put on some of the islands.

I am alarmed at the hysteria that has surrounded most all of the Seiberling hearings, where special interest groups demand that portions of our land be locked up. I hope and trust that the Senate approach is going to be under a much better atmosphere.

I would like to speak specifically about Admiralty and Chichagof Island classifications:

Admiralty Island

I do not endorse a wilderness classification for Admiralty Island. I think that the classification is too severe and does not take into account better use of the land and resources without any detriment to the Island and the people. I would endorse the Forest Service proposal that primarily splits Admiralty in the middle, leaving the east side under a recreational program and the west side under the multiple use concept where a certain amount of timber harvesting and mineral resources could be developed under proper guidelines. It would also leave open the withdrawal of lands for the Kootznoowoo, Sealaska and Goldbelt Corporations.

Brown Bear

The harvest of brown bear on Admiralty has been in a very steady pattern for many years. The harvest has been split very evenly between resident and nonresidents. Years back the Forest Service took the precaution of setting aside bear reserves and bear observation posts. The Hasselborg-Thayer Lakes brown bear reserve has adequately stabilized the protection of the brown bear. Also the Pack Creek observation area has allowed the public easy access to observing the brown bear feeding on salmon. I see no reason why cabin sites and the flexibility that is needed for travelling through the country should not be continued under this recreational pattern. There certainly has been no harm done to the land during the many years of this system.

Very few lay people understand the habits and characteristics of our Alaska brown bear. After many years of guiding and studying these animals and with respect to areas open the brown bear hunting, I am thoroughly convinced that if we are to have a continuing stable bear population there must be a rather steady harvesting of the bigger bear, as they get older. If this is not done the older bear cause a high mortality in the young bear and cubs whenever they can come in contact with them. The harvesting of brown bear should continue on a controlled scale of good management.

Deer

The harvesting of deer is a prime source of meat for many Alaska families in this area. The Alaska deer is probably one of the best animals. The meat is very mild and extremely fat when gotten in season. As the deer is basically a browser the quality and quantity of browse is of primary concern in generating a large herd of deer. In my opinion timber harvesting opens large quantities of the ground to the sun, which sweetens the soil, and encourages young tender browse to sprout. This type of young browse puts fat on the animals much quicker and they are better prepared for a hard winter. Under adverse conditions the deer live off their fat. They can survive long periods of time when in good condition. I endorse timber cutting in areas that the Forest Service feels should be open to cutting.

West Chichagof Island

I have spent many years at West Chichagof Islands, and know the country very well. What I can say to offset the strong local and national emotional feeling for setting aside wilderness areas I do not know. However, I will try to very simply state what I do know, and hope that it will have some bearing on decisions that are going to be made by your committee. Here again the Forest Service and other agencies spent considerable time holding hearings and drafting proposals. The strongest support by numbers that they had for West Chichagof was Alternate "D", which basically set aside the outer coast for recreation area and left the east side for multiple use and timber harvest. I would strongly favor this classification and allow mineral development when it proves feasible.

One of the major items that people do not consider enough is the remoteness of West Chichagof to ordinary travel. The only people who can afford to visit this area are people who can acquire a good ocean-going boat, with a knowledgeable skipper, and then try to pick fair weather to make the trip. From a scenic standpoint there are no more than three months out of the year where the weather could be called "suitable" for making a trip back into the hills from a small boat. The terrain is rough, rocky and dangerous. It is essential that people who want to go that far and hunt in the country should have a cabin site from the standpoint of protection from the elements.

It has been stated that a group of very small islands, called the Myriad Islands, alongside the west coast of Chichagof, should be set aside for the protection of the sea otter and sea lions. I say this is absolutely ridiculous. In the first place the sea otter are out beyond the Myriad Island group, their habitat is offshore, where the surf and the ocean is rough, but the food on the sea bottom allows them to survive. All that is needed, in my opinion, are some regulations as to when animals should be harvested. The animals do not live on the islands or travel on them like land otter do, therefore there is no need to set the Islands aside.

Bear and Deer

Brown bear and deer are primarily the two big game animals that are on West Chichagof Island. There has been a harvest of brown bear but it has been

in small numbers because of the rough terrain and the great coverage the brown bear has. Very, very few bear would ever be observed by boat travelers going into the narrow bays. The brown bear are very alert and have a keen sense of smell, and are usually far back in the timber by the time a boat could get in close enough. From the standpoint of food the deer is the primary source and should be harvested by those people who want to go that far to hunt. Here again, I strongly urge you to NOT put restrictions on an area that offers mineral, timber, limited recreation and scenery where they, in my opinion, can all be compatible.

Subsistence

Something should be said about subsistence. This item should not be considered in d-2 land selection. Subsistence means different things to different people. It is nearly impossible to define and would be very difficult to administer. I have always hoped that the passage of the Native Land Claims Settlement Act would not have the effect of developing racial strife within the State of Alaska. Before this Act was passed Natives and whites worked side by side in the legislature, in business and industry. And have no development of personal racial tension. However, since the Act has been passed and money has been paid and corporations have been set up the climate is changing. I think we should recognize that the Native people were given 44 million acres of Alaska as a private hunting preserve in order to extinguish their aboriginal rights under the Native Claims Act. If Congress passes legislation allowing special interest groups of people the use of federal public lands of subsistence I am sure that it will be challenged on a constitutional basis. If this issue of subsistence continues it is going to cause more racial friction than any other subject I can think of.

What alarms many Alaskans is the fact that documentary proof shows that the Native groups that are asking for subsistence are the very same ones that have been very wasteful in harvesting marine mammals and caribou. In 1975 a spring count was made and it was found that 1500 caribou of the Arctic herd were left in the field to rot and for the birds and the fox to eat. This continual waste by the Natives is one of the chief causes for the decline of the caribou herd from 250,000 to 60,000 today. Eighty percent of subsistence in the rural areas has come from the sea. Subsistence for fish and marine mammals could continue without too much conflict. Subsistence for moose and caribou should NOT be included in the legislation.

Respectfully submitted.

MARCUS F. JENSEN, *Master guide.*

THE ALASKA WILDLIFE FEDERATION AND SPORTSMEN'S COUNCIL¹

POSITION STATEMENT² ON THE D-2 LANDS OF ANCSA

The Council has on record commented on the EIS prepared by the agencies proposing D-2 withdrawals. The following recommendations are presented for consideration in D-2 legislation.

Public Input Necessary On Specific Areas

The magnitude and diversity of the D-2 proposals precludes knowledgeable input on all areas from but few citizens. Accordingly, the Council prefers separate legislation for each proposal and thus insure the people's wish and contribution to the separate entity without confusing the whole of agency proposals. Legislation should provide, for each proposal, the objectives and multiple or singular uses or combinations of uses.

Legislation should avoid the deficiencies, in existing Executive orders, in providing objective guidelines for federal administrators without the ultimate bureaucratic decision. Omnibus bills tend to be less specific and complicate legislative processes for both the Congress and the people. All proposals should be accompanied by cost estimates for administration.

Fish and Game Responsibility

Legislation should recognize the State's responsibility for managing the fish and wildlife resources on D-1, D-2 and public domain. Recent federal statutes have continued to erode the State's responsibility, i.e. Marine Manual, 200 Mile Limit, Endangered Species.

¹ The Council represents sportsmen groups in Anchorage, Fairbanks, College, Cordova, Haines, Juneau, Ketchikan, Sitka and Palmer.

² This statement has also been approved by the Fairbanks Coalition of Outdoorsmen including snowmobilers, Chena River Sportsmen, trappers, Tanana Valley Sportsmen's Association, Interior Wildlife Association, and outboarders.

Wilderness Classification

Legislation should not be confounded by Wilderness classification. Legislation should follow the precedent of the Wilderness Act, giving the agency ten years to give Congress its recommendation on what areas are to be included in wilderness classification. Present knowledge of minerals, mode of travel, and past and potential use does not permit a reasonable classification at this time.

Dual Agency Control

Legislation should avoid dual agency control, a monster we should leave to Loch Ness.

Exchange of expertise between federal and state agencies, if required by statute, may better serve the people and avoid duplication of technical services.

National Forests and Refuges

The Council supports, in general, the proposals for National Forests and National Refuges with multiple use.

We are reserving comment on boundaries and the specific wording, in legislation, with respect to objectives and use. The U.S. Forest Service should manage for wildlife on lands primarily suited to wildlife, and U.S. Fish & Wildlife service should manage for forests on land primarily suited for forest use.

Minerals, Oil and Metal, Exploration and Development

Given agency authority to control and monitor, consistent with the objectives of a given area, mineral exploration and development should be permitted on all D-2 lands with the exception of portions of monuments and parks and critical fish and wildlife habitat.

The public concern and existing environmental statutes will preclude most of the past mistakes from mineral exploration and development. The need for strategic minerals, mining industry, and energy resources will ultimately dictate these uses. Serious objection to recent BLM mining regulations indicate a need for more reasonable control of mining.

National Park Proliferation

The Council has a record of support for National Parks in Alaska and has long supported the need for Congressional mandates to replace Executive orders. The Council is disturbed over the magnitude and inadequate justification of the National Park Service proposals which include vast areas of ordinary landscape without unique features of national significance in flora, fauna, scenery, archeology, geology or history. These "acre happy" proposals, if accepted by Congress, will unnecessarily exclude many other potential uses.

Of particular concern are the large additions to McKinley and Katmai and the Wrangell-St. Elias and Arctic Parks. The Council would support reasonable additions to the Park system, though not yet justified, and providing the creative legislation specifies objectives and uses.

The Council considers the term "Preserve", used by the "Conservation Coalition" (Sierra Club, Conservation Society, etc.), as a NPS ruse for a holding pattern before landing a park. The EIS by the NPS used a suggestion to permit "subsistence hunting" as a ruse for public support. Preserves, if created, should be managed by an agency (BLM, FWS, FS) other than NPS. The term "subsistence hunting/fishing" is inconsistent, constitutionally and definitively, and should not be used in legislation.

The NPS fishery management is notoriously poor. The Park proposals include important river systems where the anadromous and resident fisheries are the most important singular use not to be subverted to other priority uses.

BLM Organic Act

The new BLM Organic Act may now prompt suggestions for retention of all D-2 lands under BLM. We consider this an appropriate potential for areas of controversy, such as the NPS proposals. The Council, however, supports the concept of National Parks, forests, refuges, and scenic rivers being managed by the respective bureaus and not run the hazard of single agency control. Legislation should also consider lands declassified from D-2 to D-1 and provide guidelines for the BLM.

Governor Hammond's Comans

The Council supports the concept of Governor Hammond's comans but believes it a compromise defensive position and seriously doubts that it will satisfy the interests of people and the members of Congress who were the D-2 genesis.

Controversial areas, where there exists a complicated mix of Federal, State and Native selection lands and where the need exists for similar management, "Comans" may be appropriate. ANCSA conflicts with the Statehood Act in land selection and the D-2 provision restricts Native selection. The State, Native and community needs should be more carefully identified before classification of D-2. "Preserve and protect" is an omnibus phrase implying lands outside of national dedications are of no concern.

Wild and Scenic Rivers

Except for disturbance by placer mining, most Alaskan rivers qualify for wild and scenic classification. The existing proposals are deficient in recognition of (1) irregular, ill defined boundaries, (2) valid existing claims, (3) managerial problems and costs, (4) conflicts with corridors for transmission and transport, (5) necessary fishery management, and (6) use for trapping, hunting, fishing, and use of power vehicles.

URBAN C. NELSON,
Executive Director,

Executive Committee of the Alaska Wildlife Federation & Sportsmen's Council.

[The following statement and accompanying letter regarding the proposed Endicott Wilderness in Southeast Alaska were submitted for the record by Dale Henkins.]

ENDICOTT RIVER AREA

I am Dale Henkins. I would like to testify before you about my concerns in the proposed Endicott Wilderness Area.

I have been prospecting in and around the proposed Endicott Wilderness for the past 14 years. I presently have 20 claims, 8 millsites, and 2 tunnel sites located there.

This group of claims covers a total area at present of 728 acres, and is known as the Endicott Group.

The State of Alaska geologic report #44 states that this group is located on a "tertiary quartz monzonite intrusive that is exposed over an area of approximately three-quarters of a square mile."

The operator's final report on Defense Minerals Exploration Administration Project (Docket No. DMEA 4710) (Contract No. 10-90) shows that a sum of \$24,000 has been expended on this claim group and that on the "basis of a .022% assay for uranium across 100 foot width this stockwork being over two thousand feet long, and assuming a depth of one half length we would assume an inferred tonnage of fifteen million tons." This tonnage would yield about 7,000,000 lbs. U_3O_8 .

In my work with this project I have come to believe that the zone of mineralization is much larger. Based on the radioactive anomaly expressed on the surface, that is 4,500 ft. \times 1,200 ft. and so far shows a vertical depth of 1,800 ft. and using the reasonably shown assay for the 100 ft. zone of .022% U_3O_8 and density factor of 11 cu. ft./1 ton, it can be calculated that a possible mineral resource potential of (4500) (1200) (1800) \div 11 = 883,636,363 Tones exists. That would yield some 399,403,636, lbs. of U_3O_8 .

I believe there is a good probability that a significant part of this resource will prove to be extractable.

1. I have found rock that grab samples do assay in the range of present day ore grades; i.e., .15 percent or 3 lbs. per ton. This shows that presently profitable ore is likely present and needs to be searched for.

2. I have come to the conclusion that solutions of U bearing water are migrating within the hill and have a potential of being trapped in topographic and structural areas similar to those being mined and studied on the Midnight Mine.

3. I believe that after comparing the resource potentials of the Endicott Group with those of say the Chatanooga shale, that because of the small highly compact nature of the Endicott Group, the extremely favorable location with respect to deep non-freezing salt water and the topographically enhanced minability, this deposit will benefit soonest from any change in technology of economics, hence will be mined sooner and to a greater degree than most deposits of equal resource potential, and with a much smaller impact environmentally.

4. As some of the assays and reports I am presenting will show, there also seem to be good resource values of other strategic and important metals and minerals. Some of these are Rutile 2-10 percent, Muscovite 2-10 percent, Apatite 2-10 percent, Copper, Molybdenum, Barium, Columbium, Gallium, Lead, Silver, and Gold.

This availability of several co-products indicates a more favorable production possibility.

The proposed Endicott Wilderness is directly in the path of the only reasonable land road access to the north end of Glacier Bay National Monument.

I would also like to point out that there is presently a small airstrip as well as a large clear-cut logged off area at the mouth of the Endicott River and such items are not really compatible with the Wilderness concept.

In conclusion, I believe that the mineral, metal and energy resources of the proposed Endicott Wilderness Area are of sufficient national importance that further

consideration of that area as such is not warranted, and that the multiple use concept should be retained.

DALE E. HENKINS,

OCCIDENTAL MINERAL CORP.,
Lakewood, Colo., October 23, 1977.

MR. DALE L. HENKINS,
P.O. Box 261,
Douglas, Ark.

DEAR MR. HENKINS: I appreciate your patience while awaiting a reply as to Occidental's interest in your Endicott Claims at Endicott Bay, Alaska. It is to the best interest of Occidental Minerals that the minerals exploration plans and program in southeast Alaska be temporarily set aside until next spring; therefore, your Endicott Claims cannot be considered for acquisition at this time.

This time delay will permit clearing the forthcoming inclement weather and, most importantly, it is hoped that the time will permit clearing the political cloud that currently darkens Alaska's future.

We tried to make a quick trip up there a couple of weeks ago to examine the property, but bad weather in your area caused us to cancel the trip. You may be assured that, with the coming of spring and some clarity in Alaska's land use, Occidental Minerals will be in contact with you about your Endicott Prospect.

Yours truly,

JOHN J. BORKERT,
Uranium Exploration Manager.

[The following materials on the Tongass National Forest and southeast Alaska were submitted by Rai Behnert, coordinator, Tongass Land Management Plan.]

AREAS PROPOSED IN PENDING LEGISLATION (SENATE BILLS)

<u>S 1500</u>		<u>S 500</u>	
1. Situk River	20 M	1. Situk River	20 M
2. Stikine River	50 M	2. Stikine River	50 M
3. Admiralty	1,030 M	3. Admiralty	1,030 M
4. Yakutat Forelands	300 M	4. Yakutat Forelands	300 M
5. Misty Fiords	2,400 M	5. Misty Fiords	2,400 M
6. Stikine-LeConte	305 M	6. Stikine-LeConte	305 M
7. W. Chicagof-Yakobi	405 M	7. W. Chicagof-Yakobi	405 M
8. Duncan Canal	120 M		
9. Etolin Island	235 M	Total	4,510 M
10. Karta	47 M		29% of Forest
11. Tebenkoff	68 M		
12. Dall Island	160 M		
13. Idaho Inlet-Mud Bay	100 M		
14. Kadake	15 M		
15. N. Kruszof	14 M		
16. Pavlof	18 M		
17. Rocky Pass	72 M		
18. St. James Bay	32 M		
19. Salmon Bay	21 M		
20. Sarkar Lakes	32 M		
21. Sweetwater-Honker Divide	94 M		
Total	5,538 M		
	36% of Forest		

FACTORS CONSIDERED IN DISPLAY MAP COMPIATION

TLMP Meeting, Gp I & II 11-11-77

These are items which were inventoried per task force study plans-

Recreation

① Ecotype:

diversity
 terrain
 geologic
 water
 vegetation
 discordant elements
 (air pollution-
 water, noise)
 land use effects

Cultural features-:

archeological sites
 historic
 campgrounds
 picnic grounds
 commercial public service sites
 recreation cabins
 boating facilities
 public visitor sites
 organization sites
 fishery management sites

Access-:

primary roads
 anchorages
 air landing sites
 roads to isolated communities
 not contiguous to communities
 secondary waterways
 primary waterways

Fisheries① Sport- species diversity
 species abundance
 stream morphology

special values:

unique
 quality
 containing critical habitat
 special

① Commercial- weir sites

enhancement potential
 pre-emergence sample streams
 unique management
 exceptional productivity
 species diversity
 abundance
 stream morphology & mileage
 lakes

① Wildlife

brown/black bears -concentration areas
 wolf high density areas
 deer winter range
 moose concentration areas
 mountain goat range
 marine mammal
 concentration areas
 water bird concentration areas
 bald eagle densities
 furbearer high use areas
 present use patterns for hunting,
 trapping, viewing, etc.

① Minerals & geology

mineralized class (hi, medium, low)
 production code-potential-
 none
 unknown
 minor
 significant
 substantial

minerals sub class.
 precious metals
 base metals
 non metallics
 fossil fuels
 geo-thermal

recreation commodity
 (by attraction)

number of claims
 number of patented claims

Estuarine

- surface acres/estuary
- % of area less than 60' in depth
- present use conflicts
- biological presences of:

Crab

dungeness
tanner
king

ShrimpOther ShellfishHerringSmelt

Ⓢ Landtype/timber:

Timber landtype and class

On commercial forest land only:

forest type	slope class
size class	harvest operability
volume per acre	visual sensitivity
site index	

Special areas:

natural areas
historical or archeological areas
research area
wilderness study area
proposed wilderness study area
offshore islands under 50 acres
offshore islands 50-300 acres
1906 claims
municipal watersheds

Wildlife:

brown & black bear, category 1, 2 & 3 areas
wolf, category 3 areas
deer, category 2 and 3 areas
moose, category 3 areas
mountain goat, category 3 areas
furbearers, category 2 and 3 areas
land birds, category 1, 2 & 3 areas
water birds, category 3 areas

Special/unique areas
ADF&G proposed prime wildlife areas
bald eagle category 1, 2 & 3 areas
permanent ice fields

TIMBER DATA SUMMARY *

AREA NAME	M. ACRES	ANN. YIELD	POT. (MM)	REMARKS
1. Situk River	20	Negligible		
2. Stikine River	50	2 - 4		
3. Admiralty	1,078	115 - 125		
a. (Mansfield Peninsula)	(62)	(5 - 6)		
4. Yakutat Forelands	250	13 - 16		
5. Misty Fiords	2,282	60 - 70		High percentage of marginal timber
a. (Granite Fiord)	(590)	(8 - 10)		
b. (W. Side Behm Canal)	(244)	(10)		
c. (Unuk)	(358)	(9)		
d. (Bola DeQuadra)	(1,000)	(34)		
6. Stikine-LeConte	300	6 - 9		
7. W. Chichagof-Yakobi	426	8 - 13		
a. (W. W. Chichagof)	(237)	(4 - 6)		
b. (E. W. Chichagof)	(189)	(7 - 9)		E. side inclusion in wilderness would result in Breach of Contract.
c. (Khaz Peninsula)	(33)	(negl.)		
8. Duncan Canal	163	8 - 10		
9. Etolin Island	235	20 - 25		
10. Karta	39	4 - 6		
11. Tebenkof	67	6 - 8		
12. Dall Island	160	11 - 13		Largely selected by Natives
13. Idaho Inlet-Mud Bay	100	3 - 4		
14. Kadake	15	2 - 3		
15. N. Kruzof	14	1		
16. Paulof Harbor	18	1		Contains active timber sale
17. Rocky Pass	72	3 - 4		
18. St. James Bay	32	Negligible		
19. Salmon Bay	21	1 - 2		
20. Sarkar Lakes	32	3 - 4		
21. Sweetwater-Honker Divide	94	10 - 12		
TOTALS	5,218	275 - 330		

* Data based on preliminary analysis to be updated through current Tongass Land Management Planning Process.

Note: Areas in parenthesis are parts of major areas.

December 12, 1977

ADMIRALTY ISLAND

I. LOCATION.A. CHATHAM AREA, TONGASS N.F. REGION 10, ALASKA.

The Admiralty Island wilderness proposal is located in the Tongass National Forest directly southwest of the city of Juneau, the Alaskan capital. The island is approximately 100 miles long and slightly over 30 miles across at its widest point. Bounded by Chatham Strait on the west and by Stephens Passage on the east, its northeastern point, on Mansfield Peninsula, is within ten miles of Juneau.

The wilderness proposal area is understood to include the Brothers and San Juan Islands off the southeast coast; all islands in Seymour Canal; Grand Island, northeast of the Glass Peninsula; small islands from Killisnoo Island south, along the western coastline; and Yasha Island off the southern tip of Admiralty. The proposal excludes the Mansfield Peninsula which is considered separately.

B. RELATIONSHIP TO COMMUNITIES.

ANGOON, located on the west coast of Admiralty, at the mouth of Kootznahoo Inlet, is the only community on Admiralty Island (excluding Funter Bay on the Mansfield Peninsula which is considered separately). With an estimated population of 481 in 1975, Angoon has experienced a 4.4% decrease in the period 1970-1975. In 1972, 72.8% of Angoon's population was Indian (Tlingit, Haida, or Tsimshian) and 2.0% Aleut, .4% Eskimo, and 1.2% other. The remaining 22.7% of the population was white. These State census figures indicate a decrease in the Native population from 94.3% of the total population in 1970.

Most of the people of Angoon follow a subsistence lifestyle. In the past, a few people regularly used the interior of the island to trap beaver and other animals for pelts and to collect special plants for medicine. Today subsistence use is focused on the sea and shoreline. In 1976 a socio-economic survey of Angoon residents found that most people remained in the local Killisnoo and Mitchell Bay area for subsistence needs; however, some travel much farther, primarily to hunt deer. Locations mentioned most often beyond the immediate Angoon area were Hawk Inlet, Square Cove, and Whitewater, Chaik, and Hood Bays. In the same socio-economic survey, it was found that over half of the residents look to subsistence activities for one-quarter or more of their food.

The State of Alaska Department of Labor reported that the 1976 annual average unemployment in Angoon was 37.7% of the total labor force as compared with a statewide unemployment figure of 9.7%. Of those working, 63% were employed by government agencies, primarily State of Alaska and local government groups.

JUNEAU, the Alaskan capital, had a reported population of 17,714 in 1975. This represents a +30.7% increase during the period 1970-1975. In 1970, 84.3% of the population was white; 10.9% Indian; 0.5% Aleut; 0.8% Eskimo; and 3.5% other. Juneau's economy is stabilized by a high proportion of State and Federal workers and the community reported unemployment rates in 1974, ranging from 10.4% in February to 4.5% in August. With the cancellation of the Champion International Timber Sale and the related pulp mill at Berner's Bay and with the proposed capital move, Juneau's economic future is extremely uncertain.

Many Juneau residents are strongly oriented toward outdoor recreation pursuits as evidenced by a large increase in the number of small boats and cruisers during the last decade. Living within ten miles of the tip of the island to the north, Juneau residents use Admiralty Island extensively for recreation and sport hunting purposes.

HOONAH is located slightly over 20 miles to the west of Admiralty, just inside Port Frederick on Icy Strait. Residents of Hoonah have traditionally used Admiralty Island both for subsistence and for sport hunting and fishing purposes. Essentially a fishing village, Hoonah had a reported population of 800 in 1975, an increase of 52 individuals from 1970. In 1975, 71.4% of the Hoonah population was Native (Tlingit, Haida, or Tsimshian).

OTHER COMMUNITIES: Because of its central location within the northern portion of southeast Alaska and because of its extremely high fish and wildlife values, Admiralty Island is utilized extensively by residents of many communities. In addition to Angoon, Juneau, and Hoonah residents, many individuals from Kake, Petersburg, Sitka, Wrangell and other communities consider Admiralty a major recreation and hunting location.

C. VCU's INCLUDED.

132-183 inclusive, and a part of 131 plus a part of 52 (Grand Island).

II. CHARACTER OF AREA.

A. PHYSIOGRAPHIC REGION.

Admiralty and Chichagof Islands are classified together in the Admiralty/Chichagof Physiographic Region.

B. DESCRIPTION.

1. PHYSIOGRAPHIC FEATURES.

Admiralty is a major coastal island, rising from sea level to 4,650 feet at its highest peak. It is characterized by blocky mountainous terrain, numerous lakes and saltwater bays.

The island is roughly split by a mountainous spine running the entire north-south length. The west side of this range has a more moderate topography than the rougher east side and is more heavily timbered, with expanses of old growth timber. There are numerous lakes draining to the westward and one of the 30 most important salmon spawning streams in southeast Alaska. On the east side of the island are located eight of the major southeastern salmon spawning streams.

At lower elevations, the climate is moderate and the yearly temperatures fluctuate from about 15° to 75°. Heavy rainfall occurs throughout the year with precipitation ranging between 100-125 inches annually. Angoon, however, lies at the southwesterly edge of a sizable rain-shadow area which includes the central lakes area and most of the western shore; the community averages a rainfall of only 39 inches and experiences a mean annual temperature of 40° F.

2. ECOLOGICAL FEATURES.

Admiralty is considered to be a major, intact ecosystem. Although the island contains fewer vegetation types and species of animals than some regions of the state, it supports plant and animal communities related to a continuum of physiographic environments ranging from marine and estuarine zones to rocky mountain peaks. Admiralty is a diverse system of beach grasses, forest, muskeg, meadow, brush, and alpine tundra blended by transitional zones and interspersed with numerous streams and lakes.

Its most significant fish and wildlife resources include salmon, deer, brown/grizzly bear, and the highest density of breeding bald eagles in North America with an estimated 500 active nest sites. Five species of salmon, cutthroat trout, Dolly Varden, halibut, clams, and crabs inhabit the coastal, intertidal, and fresh water lakes of the island.

- A dense, mature Sitka spruce and western hemlock forest covers much of the lower elevation of Admiralty Island. Interspersed as minor components of the forest canopy are yellow cedar and red alder. Western hemlock is the dominant species, comprising upwards of 60 to 75 percent of the stand, a percentage fairly constant among southeastern forests. On thin and steep soils, a forest of far lesser proportions is found, generally non-commercial mountain and western hemlock, lodgepole pine, and Alaskan yellow cedar. Underlying the canopy and controlled in density and composition by light and soil drainage are often dense clusters of blueberry, bunchberry, devil's club, salmonberry, red alder, and skunk cabbage.

Interspersed within the forest ecosystem of the island are large areas of bog or muskeg. These are generally areas of thick organic soils with impeded drainage such that the water table is often at the surface in standing ponds. Within these bog areas are found lodgepole pine, mountain hemlock, and Alaska cedar. The surface vegetation of the bogs is dominated by sedges, grasses, and sphagnum.

With some 860 miles of coastline, extensive areas of tideflats are located in the bays and inlets. Here beach ryegrass, silverweed, and sedges provide a valuable winter food source for wildlife, particularly deer.

Alpine vegetation generally occurs in the zone from the upper reaches of the forest zone (approximately 1,500 feet) to the high rocky peaks. Vegetation is mainly composed of mountain heaths and sedges intermixed with blue and crow berries. On disturbed sites, such as slide and avalanche areas, salmonberry, devil's club, and Sitka alder are found.

3. LANDTYPE BREAKDOWN.

LANDTYPE	NO. OF ACRES	% VCU
Censused Freshwater	12,818	1.26
Non-censused Freshwater	2,650	0.26
Estuarine	3,151	0.31
Muskeg	58,004	5.70
Alluvial	6,302	0.62
Valley Bottom Lowlands	151,097	14.85
Glacial Valley Walls	602,312	59.21
Alpine	180,958	17.79
Acres	1,017,292	100.00%

III. LAND OWNERSHIP.

A. ACRES BY OWNERSHIP.

TOTAL N.F. LAND ACRES	CENSUSED FRESH WATER BODIES > 40 ACRES	OTHER WATER < 40 ACRES	PRIVATE LAND	TOTAL ACRES WITHIN BOUNDARY
1,018,756.3	12,376.2	948.5	1,530.7	1,033,612.0

B. DIFFERENCE IN ACRES IN BILL AND ACRES BY VCU.

(Approximate) +6,388. In the bill - 1,040,000 acres.

IV. MANAGEMENT AND USE.

A. EXISTING USES.

There are several categories of existing uses on Admiralty Island. In addition to subsistence use by residents of Angoon and Hoonah, the island is used for both subsistence and sport hunting by individuals from other Alaskan communities and the lower states. Brown bear hunting is especially popular with stateside hunters. Deer hunting is a major use by hunters from Juneau, Kake, and Petersburg. Sport fishing in the lakes, particularly Hasselborg, Young, Distin, Florence, and others, is still another important recreation use. The mid-section of Admiralty, from Mole Harbor through the Admiralty Lake to Kootznahoo Sound and

Angeon, supports the bulk of the recreation use of the island. The Admiralty Lakes Recreation Area, established in 1965, consists of approximately 110,000 acres and encompasses much of this area. The total 15 Forest Service public cabins on the island received 11,000 person-days of use in 1976.

In addition to extractive subsistence and sport use, Admiralty is used for research purposes. A 5,780 acre unit at Pack Creek was designated as a Bear Refuge in the 1930's and reclassified as Pack Creek Research Natural Area in 1951. The Forest Service observation platforms on Pack Creek are a safe means for viewing the brown bear who fish at the stream. Forestry Science Laboratory experimental studies are conducted at Young Bay, at Windfall Harbor, and at Whitewater Bay. This research includes second growth and thinning research. Facilities at Young Bay include: 5 buildings (General Administration, living quarters, laboratory and stream gauging facilities), 1 dam, 1 pond, 1 steel culvert delivering water to the Administrative area, and administrative roads. Finally, the Seymour Eagle Management Area, encompassing 11,000 acres of islands in Seymour Canal, was established in March, 1972. The objective of research in this area is to study natural habitat conditions and to provide protection; over 400 eagle nests have been documented in the Area.

There are 49 special-use permits currently in effect for Admiralty (excluding those issued on the Mansfield Peninsula which are discussed separately). Many are issued to individuals for cabins and recreation residences; also included are RCA electronic sites, water transmission lines, power plant and transmission lines, State Fish and Game research weirs, and other uses. A chart of existing special-use permits, identified by VCU is as follows:

VCU	TYPE	LOCATION
134	(1) Cabin (Whiting)	Stink Creek
135	(1) Cabin (Whiting)	Oliver Inlet
136	(2) Cabin (Whiting and Harris)	Greens Cove and Pt.
137	(2) Cabin (Grant and Rider)	Station Point and S
138	(2) Cabin (Nordling and Fagerstram)	Glass Peninsula and
141	(3) Cabin (Bonnett and Ingledue and Swanson)	Seymour Canal and B
142	(2) Cabin (Seiffert and Bartoo)	Glass Peninsula and
143	(3) Cabin (Cameron, Mattson, and Newman)	King Salmon Bay
146	(1) Cabin (Cook)	Game Cove
	(1) RCA Elec. Site	Wheeler Creek
152	(1) Cabin (Bartoo)	Swan Cove
153	(3) Cabin (Rudolph, Lindstrom, Reynolds)	Swan Island
	(1) Cabin (ADF&G)	Swan Island
154	(1) Cabin (Bartoo)	Seymour Canal
155	(1) Cabin (McCormick)	Buck Island
162	(1) Resort (Nelson)	Thayer Lake
	(1) Power Plant and transmission line (Nelson)	Thayer Lake
163	(2) Cultivation (John and Jones)	Kootznahoo Inlet

VCU	TYPE	LOCATION
165	(5) Cabins (Pratt, Willis, Zuboff, James, John)	Turn Pt.
	(3) Residence (Esmino and Angoon, Kootznahoo Inc., and Johnson)	Turn Pt.
	(1) Reservoir and Dam (Angoon)	Angoon
	(1) RCA Elec. Site	Angoon
	(1) Cultivation (Johnson)	Killisnoo
	(1) Cemetery (Angoon)	Killisnoo Harbor
	(1) Power Line (Alaska Village Elec. Coop)	Favorite Bay
	(1) Refuse Yard (Angoon)	Angoon
168	(1) Cabin (Austin)	Pleasant Bay
170	(1) Cabin (Morgan)	N. Arm Gambier
171	(1) Cabin and Weir (ADF&G)	Hood Bay

B. MANAGEMENT COMMITMENTS.

1. SPECIAL USE PERMITS (49).

C. USE PROPOSALS.

There are three proposed aquaculture study sites on Admiralty: a pilot study site proposed by the Douglas Marine Station, University of Alaska, at Pybus Bay; and aquaculture/fishway sites proposed at Ward Creek and Fishery Creek.

D. LAND SELECTIONS - STATE AND NATIVE.

The primary Township for Native Selection in Angoon is Township 50 S, Range 67 E, Sections 1, 2, 11, 12, 13, 24, 25, and 36.

Shee Atika (Sitka) and Goldbelt, Inc. (Juneau) have selection rights on Admiralty which have not been identified.

V. SUMMARY OF RELEVANT RESOURCE INFORMATION.

A. RECREATION.

1. PRESENT USES.

Admiralty Island receives considerable recreation oriented use, for the most part from Juneau, Petersburg, and Angoon residents. Use concentrations tend to favor the northern portion of the island which is readily accessible to Juneauites. Gambier Bay, Pybus Bay, and protected harbors within the Point Gardner area are used primarily by recreationists from Petersburg. Hunting, fishing, boating, and beach oriented activities predominate. The Admiralty Lakes region of

the island supports high use, primarily in the form of fishing, inner inland boating and canoeing in connection with the trans-island route from Mole Harbor to Mitchell Bay. Residents of Angoon consistently use the Mitchell Bay - Favorite Bay - Hood Bay area of the island for traditional subsistence gathering. Florence and Kathleen Lakes generate significant sport fishing and backcountry outings all summer long. The Mansfield Peninsula, particularly Hawk Inlet and Funter Bay, are favorite destination and stopover anchorages in connection with hunting and sport fishing activities.

2. RECREATION FACILITIES.

Recreation facilities are limited to Forest Service public use cabins and the Thayer Lake Lodge. The rudimentary cabins are located in Admiralty Cove and Young Lake at the northern end of the island; Lake Florence and Kathleen on the western side of the island; a number of cabins throughout the Admiralty Lakes region of the island, popular because of an interconnecting land and water trail system; and in Gambier and Pybus Bay on the southeastern tip of the island.

3. UNIQUE ATTRACTION FEATURES.

Admiralty Island is renowned for its brown bear and bald eagle habitat; its abundant examples of old growth rainforest; and its numerous and complex fresh and saltwater features. Only in the north-central portion of the island does the mountainous terrain reach inspiring proportions. Saltwater bays, coves, salt chucks, and associated estuarine and tidal meadow complexes are prolific on the eastern, southern and southwestern portion of the island, offering recreationists an unlimited variety of recreational options where wildlife, water fowl and sea birds abound. The Admiralty Lakes region offers one of the most extensive lake chains of some size in southeastern Alaska.

4. WILDERNESS QUALITY RATINGS.

VCU	131 - 3	VCU	149 - 3	VCU	167 - 4
	132 - 2		150 - 4		168 - 4
	133 - 5		151 - 5		169 - 2
	134 - 3		152 - 5		170 - 5
	135 - 3		153 - 2		171 - 4
	136 - 2		154 - 3		172 - 5
	137 - 2		155 - 4		173 - 4
	138 - 2		156 - 4		174 - 2
	139 - 2		157 - 4		175 - 4
	140 - 3		158 - 3		176 - 2
	141 - 3		159 - 2		177 - 3
	142 - 4		160 - 2		178 - 2
	143 - 5		161 - 3		179 - 3
	144 - 3		162 - 4		180 - 3
	145 - 2		163 - 4		181 - 4
	146 - 4		164 - 2		182 - 5
	147 - 2		165 - 4		183 - 3
	148 - 4		166 - 5		184 - 2

B. TIMBER.1. TIMBER LAND CLASSIFICATION.

	NO. OF ACRES	% ^{OF AREA} VCU
CFL	603,887	59.36
Non-CFL	210,533	20.76
Non-Forest	202,871	19.94

2. VOLUME ESTIMATE.

VOLUME CLASS (Bd.Ft./acre)	NO. OF ACRES	% VCU
Under 8,000	23,703	3.93
8,000 - 20,000	181,245	30.91
20,000 - 30,000	257,796	42.69
30,000 - 50,000	135,128	22.38
over 50,000	6,015	1.00

3. SITE INDEX.

	NO. OF ACRES	% VCU
Low (55-85)	135,056	22.36
med (85-115)	271,760	45.00
high (115-150)	197,071	32.63

4. HARVEST OPERABILITY.

	NO. OF ACRES	% VCU
Normal	428,514	70.96
Non-Standard	133,123	22.04
Inoperable	42,250	7.00

C. WILDLIFE.

Admiralty is renowned for its dense concentrations of brown bear, deer, fur bearers, land and shore birds, and for its major population of nesting bald eagle. The southern half of the island provides superlative brown bear habitat although bear may be encountered throughout the island, including the northern Mansfield Peninsula. The hundreds of known eagle nesting sites dot all the island's shoreline with particular density along the shores and small islands of Seymour Canal.

The Vancouver Canada Goose is known to nest on Admiralty and a variety of migrant water fowl utilize the island for food and rest. Hair seal and sealion rookeries are located on the Brothers Islands off the southeastern coast.

D. FISH.

Kings spawn in certain mainland river systems and in King Salmon River on Admiralty Island. Dolly Varden char are abundant throughout Chatham Area, and cutthroat and rainbow (steelhead) trout are common. The most notable shellfish and marine fish species are Dungeness, Tanner, and King Crab, shrimp, herring, smelt, and halibut. Many other non-game species of marine fish and shellfish of significant consumptive or non-consumptive value occur in the estuaries.

Sport, commercial, and estuarine fishery values were rated by considering number of species, abundance, habitat condition, sport and commercial fisheries, and several other special values which are associated with certain watersheds. The following table shows the overall ratings for sport, commercial, and estuarine values for each VCU included on Admiralty:

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
131	med	high	low
132	low	low	low
133	high	high	low
134	low	low	high
135	low	low	high
136	low	low	low
137	low	low	---
138	low	low	---
139	low	low	high
140	low	low	high
141	low	low	high
142	med	med	high
143	high	high	high
144	med	high	---
145	low	low	---
146	high	high	high
147	low	low	high
148	high	high	high
149	low	low	---
150	high	high	---
151	high	high	med
152	med	high	high
153	low	low	high
154	low	low	high
155	low	low	high
156	high	high	high
157	high	high	---
158	high	high	---
159	low	low	---
160	low	low	---

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
161	high	high	---
162	high	high	---
163	low	low	high
164	low	low	high
165	med	high	high
166	high	high	high
167	high	high	---
168	high	high	high
169	low	low	high
170	high	high	med
171	high	high	med
172	high	high	med
173	high	high	med
174	low	low	---
175	med	high	high
176	low	low	---
177	low	low	high
178	low	low	---
179	low	low	high
180	low	low	med
181	med	high	high
182	high	high	med
183	med	med	med
184	low	low	---

Fish species identified on Admiralty are coho, sockeye, chum, pink, king, cutthroat, Dolly Varden, rainbow/steelhead. Estimated escape-ment of salmon is 10,000,000; for trout and char, 150,000. These estimates, valid only as approximate comparative values, identify Admiralty as highest of Chatham Area proposed wilderness regions for salmon; Admiralty is second to West Chichagof/Yakobi in trout and char population.

E. MINERALS.

VCU's 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 152, 151, 154, 155, 168, and 169, encompassing the northeastern portion of Admiralty Island, are within a geologic region believed to be favorable for metallic and related nonmetallic deposits. These regions are very broad mineral regions with deposits that occur in discrete clusters, proven by exploration and indicated by geologic criteria.

VCU's 131, 132, 144, 145, 146, 147, 148, 149, 150, 158, 162, 157, 156, 167, 170, 182, 183, and 184 are within a geologic region believed to be a geologically highly favorable region for metallic and related nonmetallic deposits. These areas are broad regions that have widely scattered mineral occurrences, proven by exploration and indicated by geologic criteria.

VCU's 159, 160, 161, 163, 164, 165, 166, 171, 172, 173, 174, 175, 176, and 181, the southwestern portion of the island, are within a region believed to be geologically less favorable for metallic and related nonmetallic deposits. Existing data and geologic criteria indicate these regions have less potential for hard mineral deposits.

VCU's 177, 178, and 180, the southern tip of the island, are within a geologically unfavorable region for metallic and related nonmetallic deposits, except for deposits in sedimentary basins, including uranium.

In the past, Admiralty Island claim-staking and reported mineral deposits were concentrated near the beaches and at the north end of the island but, in the last couple of years, deposits of lode minerals have been located inland.

To date gold mines have been the only producers with small scale operations at the Admiralty-Alaska and Alaska Dano mines located at Funter Bay and Hawk Inlet. Production ended in the early 1940's.

There are coal deposits south of Mitchell Bay in VCU 166, in the Hood Bay area (171), and at the southern tip of the island (177). Coal in VCU 166 is located on two patented claims, Latitude $57^{\circ} 30'$, Longitude $134^{\circ} 27'$, known as the Harkrader Coal properties.

Discovered in 1868, the deposit is composed of two main beds of high volatile bituminous coal. At the time of the mine closure, 600 tons of coal had been produced.

VCU 177 has a coal deposit that was discovered in 1868 by Captain T.W. White. The coal is bituminous and was described in 1904 as a low ash coal with no visible sulfur. Due to the crushed and irregular structural qualities and location requiring a tramway and wharf, the property was deemed subeconomic. This deposit is known as the Murder Cove coal deposit.

VCU 171 has a coal deposit on the east shore of Favorite Bay, known as the Sepphagen mine which was active in 1895. In 1906, Wright described the deposit as a "worthless coal seam exposed at water."

VCU's 131, 132, and 144, south of Funter Bay, all contain portions of the Noranda 428 lode mineral claims. Gold, silver, lead, zinc, and copper have been reported as being found. These claims, involving 8560 acres, are the most active at this time on Admiralty Island. The location of the center of the claims is Latitude $58^{\circ} 04'$, Longitude $134^{\circ} 40'$.

VCU 134, in the Stink Creek area, has 30 mineral lode claims which involve 600 acres. The location is Latitude $58^{\circ} 10'$, Longitude $134^{\circ} 27'$. Gold, silver, lead, zinc, and copper have been reported as found. These claims were filed on in 1975 and are active at present.

At Latitude $57^{\circ} 24'$, Longitude $134^{\circ} 16'$, on the northeast border of VCU 171 is located a large block of claims. Part lie in VCU 171 and part lie in VCU 183. Total number of claims is 160 lode claims.

VCU 182 has a portion of a large block of claims on its northwest border, near Pybus Lake. These claims total 160 lode claims.

VCU's 132, 133, 143, and 144, on northern Admiralty, all have some portion of 125 mineral claims filed in 1975 and involving 2500 acres. The operators report gold, silver, lead, zinc, and copper in these active claims. The location of the center of the claims is Latitude $58^{\circ} 07'$, Longitude $134^{\circ} 34'$.

VCU 147, on the west coast from Pt. Marsten south past Pt. Hepborn, has 76 mineral lode claims, located at Latitude $57^{\circ} 59'$, Longitude $134^{\circ} 52'$, on Cube Pt. at Square Cove. Gold, silver, lead, zinc, and copper have been reported. Exploration started in 1975 and is continuing at the present time.

VCU's 145, east of Wheeler Creek, and 148, in the Peanut and Kathleen Lakes area, have two large blocks of claims within their boundaries, totalling 22 placer and 36 lode claims. The 22 placer claims report copper, gold, and iron. They became active in 1967 and are active at present. the 36 lode claims report gold, silver, lead, zinc, and copper. They became active in 1970 and are active at present as the Pyrola Ore deposit.

VCU 152, northwest of the Seymour Canal, has a group of lode copper claims, part of a group of 19. They are located at Latitude $57^{\circ} 54'$, Longitude $134^{\circ} 18'$, on the west shore of Seymour Canal above Windfall Harbor, at elevation 700 feet \pm . This deposit was discovered in 1960 and is active at present. Also in the same location are two copper lode claims, filed for the first time in 1899 and active at present.

VCU 151 has a number of mineral lode claims around Windfall Harbor. These claims are part of the group of 19 found in VCU 152. In addition, there are 5 copper claims in the same location which are active at present.

VCU 167, near Yellow Bear Mountain, has 56 lode claims covering 1,120 acres. The minerals claimed are not known. The location is on the mideastern border of the VCU, at Latitude $57^{\circ} 33'$, Longitude $134^{\circ} 12'$. These claims were filed in 1976 and are active at present. The work is being done by W.G.M. Inc.

VCU's 168 and 170, Pleasant Bay to Gambier, have a large block of lode claims, totalling 20 and covering 4,120 acres. The minerals indicated are silver, lead, zinc, and copper. Location is on the south border of VCU 168 and the north border of VCU 170 at Latitude $57^{\circ} 33'$, Longitude $134^{\circ} 04'$. These claims were discovered in 1966 and are active at present.

The remainder of the VCU's on Admiralty Island either lack exploration or the work completed has not provided sufficient mineral evidence to hold interest for further exploration.

F. CULTURAL.

There is great depth and continuity of cultural history on Admiralty Island which has been occupied and used by countless generations of Tlingit Indians. Many prehistoric remains are known to exist on the island, although only minute portions have been surveyed. Additionally, historical buildings, whaling station locations, canneries, mining structures, and village sites are known to exist.

Some archeological survey work was done by Frederica Delaguna in 1949-50, primarily in the vicinity of Angoon, although some site information was developed about other remains in the southern part of Admiralty. Most of the sites located were of comparatively recent Tlingit settlements. However, a number of the sites appear to have a strong potential in tracing the development of prehistoric Tlingit culture. The highest potential appears to be in the southern half of Admiralty, although the northern half also had settlements in virtually every bay and inlet of any size at all.

Historical structures remain in many of the bays, inlets, and on several small islands such as Killisnoo. These relate to historic period wooden houses and cannery buildings and are in a ruinous state. The most valuable historical structures are the "tribal houses" within Angoon itself. They are all of wooden construction, dating somewhat before the turn of the century, and are in reasonably good condition considering their age. Apparently a wealth of portable artifacts, ceremonial hats and costumes, and other traditional objects remain in Angoon. These artifacts, like the houses, are considered private property, sometimes owned by an individual but usually owned by a clan and held in stewardship by a member. Rights of sale/safe-keeping of such properties are a subject of legal dispute throughout southeast Alaska where many similar clan houses and artifacts exist.

Non-physical cultural resources include the richness of traditional folklore, oratory skills, dances, and songs. Traditional dances and songs are generally owned by particular clans or sibs who retain all rights to their performance.

Known sites on Admiralty are:

VCU	# OF SITES	SITE #	DESCRIPTION
133	2	Jun-023(147)	village - 1868
		Jun-023(1011)	village - 1868
136	1	Jun-119	
146	1	Jun-045	petroglyph
156	2	Sit-043(1306)	village and petroglyphs
		Sit-043(814)	village and petroglyphs
157	1	Sit-019	camp, Shaheen and white
163	2	Sit-172(35)	myth site
		Sit-178(34)	fort site
164	1	Sit-049	petroglyphs
165	27	Sit-117(113)	gold camp
		Sit-179(31)	village
		Sit-056	church
		Sit-022	whaling station
		Sit-014(135)	village
		Sit-015(1158)	fort and cemetery
		Sit-041	petroglyph
		Sit-017(126)	village
		Sit-031	petroglyphs

VCU	# OF SITES	SITE #	DESCRIPTION
165	27	Sit-055	church
		Sit-065	Killer Whale house
		Sit-066	Dog Salmon house
		Sit-067	Killer Whale house
		Sit-068	Brown bear
		Sit-069	Dog Salmon house
		Sit-070	Beaver Tail house
		Sit-071	
		Sit-072	
		Sit-073	
		Sit-074	
		Sit-075	
		Sit-076	
		Sit-077	
		Sit-078	
		Sit-162(129)	lighthouse reserve
		Sit-182(33)	village
		Sit-160(131)	village
		Sit-038	peitographs painted
166	2	Sit-168(25)	village
170	5	Sum-011	village, fox farm 1919
		Sum-004	petroglyphs and 3 fox farms
171	5	Sit-171(1161)	fort
		Sit-179(116)	village
		Sit-036	petroglyphs
		Sit-166(117)	village
		Sit-184(115)	village
172	6	Sit-033	petroglyph
		Sit-157(213)	village
		Sit-169(122)	village
		Sit-183(27)	village
		Sit-004	village site
		Sit-158(26)	fort
173	3	Sit-176(134)	village
		Sit-051	petroglyphs
		Sit-051(29)	Neltushkin village
174	1	Sit-052(788)	petroglyphs
177	1	Sit-081(141)	cannery - 1919
179	1	Sit-161(1080)	village
180	1	Sit-148(110)	village
181	1	Sit-149(591)	village and fort
182	4	Sit-099(1305)	burial
		Sit-153(594)	fox ranches
		Sit-083	cannery
		Sit-152(592)	fort

Kanalku Lake (112-67-060)

This lake is located in the Chatham Forest Service District east of Angoon on Admiralty Island (map reference Sitka, B-2). It is one of three lakes on Admiralty Island that is accessible to anadromous fish.

Silver salmon, red salmon, cutthroat trout, kokanee, and Dolly Varden ~~trout~~ are present in the lake. The populations of silver salmon, cutthroat trout, and kokanee appear to be in excellent condition, and the red salmon run ^{is} quite distinctive. The red salmon in this run are smaller than normal red salmon, and it is thought that this is the result of smaller fish being able to successfully negotiate a partial block at the outlet of the lake. A few thousand pink salmon and some chum salmon use the outlet stream as a spawning area.

The partial barrier also creates an excellent feeding area for brown bears, and there are several vantage points providing excellent opportunities for bear observation and photography.

There are no Forest Service cabins in the area, but camping, hunting, and fishing opportunities are excellent.

November 1977

Stikine Area - Tongass National Forest

FACT SHEET

DUNCAN CANAL

LOCATION

Duncan Canal lies within the Stikine Area of the Tongass National Forest, approximately 12 air miles and 20 water miles to the west of Petersburg. That portion being described includes the watersheds tributary to the northern three-fourths of Duncan Canal. Value Comparison Units (VCU) included in this area are indicated on the enclosed map. It is important to make study area boundaries coincide with VCU boundaries whenever possible so that Tongass Land Management Plan (TLMP) inventory and analysis information can be effectively and completely utilized. For this reason the Forest Service analysis of Duncan Canal includes in their entirety the following VCUs: Duncan (439); Castle Island (435); and Mitchell (437), as well as Castle River (436); Indian (438); Towers (440) and Salt Chuck (441).

AREA CHARACTERISTICS

Duncan Canal is an expansive inner island coastal canal nearly 30 miles long and one to four miles wide, separating Kupreanof Island from Lindenburg Peninsula.

The landscape west of Duncan Canal is of the Basin-Knob (Kupreanof lowland) visual character type which is typified by expansive rolling lowlands and scattered blocky mountains with rounded summits (2000-3500 feet) which appear significant due to their contrast with adjacent expansive lowlands. The area east of Duncan Canal is of the Coastal Hill landscape character type where generally steep landforms to salt-water exist and a very irregular, rounded appearance is characteristic. It is generally substantially more rugged than the Basin-Knob (Kupreanof lowland) character type.

The area contains extensive coniferous forest and muskeg ecosystems. The land areas of principal use are dominated by an estuarine ecosystem. There are many small lowland lakes and shallow streams.

Tongass Land Management Plan inventory data indicates that the land types are distributed as follows:

<u>Land Type</u>	<u>Percentage</u>
Private Land	0.1
Freshwater	0.3
Estuarine	0.2
Muskeg	32.6
Alluvial	2.1
Valley Bottoms & Lowlands	37.0
Glaciated Valley Walls	22.4
Alpine	5.3
Total	<u>100.0</u>

LAND OWNERSHIP

With the exception of 88 acres of private land, the entire Duncan Canal area is National Forest. HR-39 indicates the area totals 120,000 acres. Using TLMP area calculations and adjusting the area boundary to include all of Duncan, Mitchell and Castle Island VCUs, an area of 163,383 acres of public and 88 acres of private land were indicated.

MANAGEMENT AND LAND USE

Recreational use associated with camping, fishing and hunting, as well as timber, salmon and shellfish production are the dominant uses. The area is readily accessible by fishing vessels, pleasure boats and float-plane. Land use in the area includes: a deactivated U.S. Air Force communications tower facility, seven Forest Service public recreation cabins, an active barite mine on Big Castle Island, two private land parcels, five private cabins under special use permits and a recently deactivated FAA Air Traffic Control facility which is being dismantled. Timber sales and 60+ miles of associated roads are planned for the eastern portion of the area. The Tonka Mountain and Toncan proposed timber sales are scheduled for sale in 1978 and 1980 respectively. The associated road system will be part of a possible road link from Petersburg to the Indian community of Kake. A Petersburg-Kake route (18+ miles) is one of several being evaluated by the Alaska Department of Highways as a result of a recent southeast Alaska transportation study. A potential overland utility corridor from Petersburg to Kake closely following the proposed road system is being considered by the State.

SUMMARY OF RELEVANT RESOURCE INFORMATIONRecreation

Private and public cabins in the area receive moderately heavy use by local residents and there is considerable day use attributable to boaters. Primary pursuits of recreationists are sport fishing and waterfowl hunting. Deer are hunted when populations permit open seasons.

Timber

Commercial Forest Land (CFL) totals 64,230 acres, or 32 percent of the area's total acreage. Total volume estimated for CFL is 1,302,822,000 board feet.

Soil Productivity of C.F.L. (Site Index)

Low	45 percent
Medium	51 percent
High	4 percent

Harvest Operability of C.F.L. (Logging Capability)

Normal	62 percent
Non Standard	32 percent
Inoperable	6 percent

Wildlife

The area is a prime resting and wintering site for ducks and geese. The large estuaries sustain high bear use. Deer habitat values are high

throughout most of the area. Other mammals inhabiting the area include mink, otter, marten, beaver, harbor seals and wolves.

Fish

The stream systems of the area are very high in sport fisheries values and of moderate commercial fisheries value. Two areas, Castle River and the Salt Chuck, are of exceptional sport fish value. With removal of upstream migration barriers, Towers Creek and Stream 106-43-45 offer potential for fish habitat improvement enhancing both sport and commercial fish values. Marine mammals, halibut, Tanner and Dungeness crabs, and other commercially important bottomfish and shellfish inhabit the area. Duncan Canal is a vital and highly productive nursery area for many valuable species of shellfish and finfish.

Minerals

Mineralization is high with significant production potential in the southern portion of the area (Castle Island VCU). There is an active barite mine on Castle Island and new claims are expected to be filed in this area during the winter of 1977-78. The northeast area (Salt Chuck VCU) is geologically highly favorable for metallic and non-metallic deposits but production potential is unfavorable. The remainder of the area has only moderate mineralization with insignificant to no production potential.

Cultural

There are no known historic or archeologic sites in the area.

PUBLIC INPUT 1971-77 -- APPARENT AGREEMENTS/CONFLICTS

Public comment emphasizes waterfowl, fishery, recreation, hunting and mineral values for Duncan Canal. Protective designations are proposed primarily for the area from Castle River north to the Salt Chuck.

ADF&G considers upper Duncan among the more important waterfowl areas in southeast Alaska, and proposes maximum protection of the waterfowl and fishery values. SEACC lends current support to Wilderness Study designation, having first proposed Roadless Recreation status for the area. CMAL leaves the area open for multiple use management. Other suggestions range from Wildlife Preserve and Dispersed Recreation, to designation as a special study area.

One of the major contentions, however, is not the type of management designation Duncan Canal should receive, but whether or not provisions should be made for a transportation corridor through a portion of the management unit to connect the Native community of Kake with the City of Petersburg.

Kake residents and Native officials, while concerned with the protection of hunting and fishing values in the Salt Chuck area, also want the option

left open for an eventual road connection to Petersburg. The business community and City of Petersburg also favor the road. There seems to be little middle-ground on this issue. Individuals and organizations either strongly support the road or strongly object to it.

NOTE: Public input concerning this area was compiled from all available data, dating back to the fall of 1971 and the beginnings of public involvement on the old Tongass Forest Land Use Plan, and including input over the past two years on the development of the Tongass Guide and the Tongass Land Management Plan. The material has been analyzed and summarized to identify areas of apparent and potential agreement and conflict.

legend:

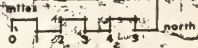
- limit of proposed area
- value comparison unit (VCU)
- suggested expansion to include whole VCU's

legend:

limit of proposed area

value comparison unit (V
suggested expansion to

include whole VCU's



Castle River (106-43-021)

This river system is located in the Stikine Forest Service District on Kupreanof Island and drains into the Duncan Canal (map reference Petersburg, C-4, C-5).

Silver salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, and Dolly Varden trout utilize the system. Silver salmon are the most consistently abundant with runs of several thousand being reported. Pink and chum salmon are periodically abundant. Cutthroat and Dolly Varden trout are abundant throughout the year, and there is a large run of steelhead trout in the spring, and a smaller run in the fall.

This system receives a substantial amount of fishing pressure from the residents of Petersburg. There are two Forest Service cabins available and they received ⁶⁰⁰~~1,400~~ visitor-days of use in the ¹⁹⁷⁶~~1975~~ season.

In addition to the excellent silver salmon, cutthroat, and Dolly Varden fishing, the area is noted for its deer and waterfowl hunting.

Duncan Canal Salt Chuck ~~(106-43-059)~~

This system is located in the Stikine Forest Service District at the head of Duncan Canal on Kupreanof Island (map reference Petersburg, D-4, D-5), and consists of stream #106-43-059 which drains into the Duncan Salt Chuck which in turn drains into Duncan Canal.

Silver salmon, pink salmon, chum salmon, cutthroat trout, Dolly Varden trout, and possibly steelhead trout utilize the salt chuck and portions of the stream. Several thousand silver salmon and large numbers of cutthroat trout contribute to the excellent sport fishery at the salt chuck rapids.

There are three Forest Service cabins in the area and they received 800 visitor days of use during the 1975 season.

The area is also a major wildlife area with resident and migrant waterfowl, black bear, and wolves utilizing the system.

Petersburg Creek (106-44-060)

This system is located in the Stikine Forest Service District on Kupreanof Island near Petersburg and drains into the Wrangell Narrows (map reference Petersburg, D-4), and includes tributaries to Petersburg Lake and Petersburg Creek.

The Petersburg Creek weir has been in operation since 1972 primarily to obtain information on the life histories of steelhead and cutthroat trout, but weir operation has yielded information on the numbers of all fish species using the system. In the order of decreasing abundance the in-migrant fish species passing the weir are as follows: Dolly Varden trout, pink salmon, red salmon, chum salmon, silver salmon, cutthroat trout, and steelhead trout. Rainbow trout are also present in the lake.

There are two Forest Service cabins in the area, and they received over 1,000 visitor-days of use in 1975. Petersburg Lake and Creek are favorite fishing areas for Petersburg residents.

ENDICOTT RIVER DRAINAGE

I. LOCATION.A. CHATHAM ADMINISTRATIVE AREA, TONGASS N.F., REGION 10, ALASKA.

This area, proposed in H.R. 39 for designation as a Wilderness Area, includes the entire watershed of the Endicott River, which flows into upper Lynn Canal. There are approximately 124,000 acres in the Unit which shares a 40 mile border with Glacier Bay National Monument; a low pass of approximately 900 feet elevation connects the Unit with the headwaters of Adams Inlet in the Monument.

B. RELATIONSHIP TO COMMUNITIES.

There are no communities within the Endicott drainage. The two communities providing most usage of the area are Haines, located 30 miles north at the head of Lynn Canal, and Juneau, 60 miles southeast and across Lynn Canal on the mainland.

HAINES is distinguished as the only community in southeast Alaska not surrounded by or adjacent to federal land. Its population in 1975 was 2,009, exhibiting a growth rate during the period 1970-1975 of +33.6%. Connected to the interior of Alaska and to Canada by highway, Haines' economy is identified as primarily manufacturing with some income derived from tourist and recreation activities. Haines utilizes the Endicott area for recreation and extractive sports activities. Primary game sought in the area are bear, goat, and moose.

JUNEAU, the Alaskan capital, had a reported population of 17,714 in 1975. This represents a +30.7% increase during the period 1970 - 1975. In 1970, 84.3% of the population was white; 10.9% Indian; 0.5% Aleut; 0.8% Eskimo; and 3.5% other. Juneau's economy is stabilized by a high proportion of State and Federal workers and had a reported unemployment rate in 1974 ranging from 10.4% in February to 4.5% in August. With the cancellation of the Champion International Timber Sale and the related pulp mill at Berner's Bay and with the proposed capital move, Juneau's economic future is extremely uncertain.

Many Juneau residents are strongly oriented toward outdoor recreation pursuits which is indicated by a large increase in the number of small boats and cruisers during the last decade. Residents use the Endicott Area for sport hunting and for incidental fishing. It is believed that Coho spawned in the Endicott system contribute to the Juneau area saltwater sport and commercial fishery.

OTHER COMMUNITIES: There are two additional communities with some proximity to the Endicott area, Gustavus and Skagway. GUSTAVUS, located southwest of the Endicott drainage on Icy Strait, draws its economic

base primarily from the Glacier Bay Monument and park-related activities. SKAGWAY, north of Haines at the head of Taiya Inlet, uses the Endicott River to a limited degree for recreational purposes. Implementation of the proposed Haines-Skagway road would make the Endicott more accessible to Skagway.

C. VCU's INCLUDED.

99 to 105 inclusive and Part of 107.

II. CHARACTER OF AREA.

A. PHYSIOGRAPHIC REGION:

The Endicott drainage is in the Coast Range Physiographic group.

B. DESCRIPTION:

1. PHYSIOGRAPHIC.

The Endicott River drainage is a large glacial river canyon with relatively common terrain. Much of the upper drainage is dominated by small trees and brush; areas near the saltwater have been logged.

The drainage intersects the Chilkat Range which extends southward as a portion of the Alsek Range system. To the west of the Endicott lies Glacier Bay National Monument, accessible from the Endicott drainage via a 900 foot pass.

Northwest-trending belts of Paleozoic and Mesozoic sedimentary and volcanic rocks underlie the Alsek Ranges.

The Endicott River watershed is within the National Weather Service Maritime Zone. Based on Juneau reporting station data, its mean annual precipitation is 92 inches with highest precipitation in the fall months (September - November) and lowest through the early spring months (April - June).

2. ECOLOGIC.

The outwash plain at the mouth of the Endicott River has extensive grass flats which are being invaded by cottonwood and spruce forests. Extensive stands of old growth timber are located on the lower slopes and valley floors. Alpine areas at the higher elevations give way to glaciers along the interior perimeter of the Unit. This is a typical spruce-hemlock rainforest found in southeastern Alaska with its forest interspersed with muskegs. The lower valley bottom is poorly drained.

The river is recognized for its potential as an important sport fish system, featuring chum and coho salmon. The area is somewhat unusual for its small resident moose population and also contains goat, deer, brown bear and wolves. It is believed that game utilize the low pass at the head of the Endicott as a migration route between the east and west side of the Chilkat Range.

3. LANDTYPE BREAKDOWN.

VCU 99-105.

Landtype	Acres	% VCU
Census Freshwater	0	0
Non-census freshwater	58	0.05
Estuarine	174	0.15
Muskeg	0	0
Alluvial	0	0
Valley Bottom Lowland	6,964	5.99
Glacial Valley Walls	43,871	37.74
Alpine	65,168	56.07

III. LAND OWNERSHIP.

Approximate H.R. 39 boundaries indicate that in some cases VCU's are split.

A. ACRES BY OWNERSHIP. VCU 99-105 + 107.

TOTAL N.F. LAND ACRES	CENSUSED FRESH WATER BODIES > 40 ACRES	OTHER WATER < 40 ACRES	PRIVATE LAND	TOTAL ACRES WITHIN BOUNDARY
124,012.0	0	0	368.1	124,380.1

B. DIFFERENCE IN ACRES IN BILL AND ACRES BY VCU.

(Approximate) - 24,380.1 In the Bill, 100,000 acres.

IV. MANAGEMENT AND USE.

A. EXISTING USES.

One special-use permit to the Alaska Department of Highways currently authorizes a camp north of the river. An RCA electronic site near William Henry Bay falls outside the proposed area.

Since 1929, the Endicott River has been withdrawn by U.S.G.S. as a potential power site for possible future development.

recreation area, the Endicott drainage is used by hunters and guides from Haines and Juneau and, to a lesser degree, from the nearest Alaskan communities. Recreationists also use the beach as a temporary campsite and picnic area. Lower portions of the drainage have been logged in the past.

MANAGEMENT COMMITMENTS: Other than the special-use permit, there are no current management commitments.

PROPOSALS.

The Alaska Department of Highways has surveyed a road location from the Lynn Canal which crosses the Endicott drainage. The plan is for the development of a road from Haines, Alaska to St. James Bay at the mouth of the Endicott. The proposed corridor runs through VCU's 99 and 105 at the lower elevations and then through the middle of VCU 107. A ferry connection, via Berners Bay, Juneau, would then effectively open this area to interior Alaska where people who can presently reach Haines. Extremely challenging terrain with steep slopes, major river drainages, and avalanche areas, with interest in the area for wilderness purposes, has resulted in denying support for this proposal.

A road connection into the Glacier Bay National Park, via the lower head of the Endicott has also been proposed.

Finally, it is believed that potential exists for aquaculture in most areas contained in H.R. 39. Detailed proposals are being developed by regional aquaculture groups.

LAND SELECTIONS.

State or Native land selections in this area are known.

SUMMARY OF RELEVANT RESOURCE INFORMATION.

RECREATION.

PRESENT USES.

The Endicott River Basin has received little use by the recreationist at large, primarily because of its relative remoteness and rugged nature. The opportunity to hike the river from Lynn Canal to Inlet in Glacier Bay could increase its popularity as a primary hiking route, particularly as the distinctive Coast Range features of the river's upper basin become more apparent to more than a few hardy hikers.

RECREATION FACILITIES.

The Endicott River unit has at present no developed recreation facilities.

3. UNIQUE ATTRACTION FEATURES.

The Endicott River Basin is quite representative of the Coast Range ecotype while supporting numerous and impressive water features and geologic phenomena. Spatial encounters are dramatic, particularly in the broad outwash valley of the Endicott gap which spills into Glacier Bay from the headwater region of the Endicott River. From an ecological standpoint the gap region is perhaps the most diverse and colorful within the Chilkat Peninsula. As earlier indicated, the ability to traverse the Chilkat Range, east to west, is unique as the Endicott River provides perhaps the only route through this rugged mountain range.

4. WILDERNESS QUALITY RATING.

VCU	99 - 2
	100 - 1
	101 - 1
	102 - 3
	103 - 2
	104 - 3
	105 - 4
	107 - 3

ENDICOTT

B. TIMBER

1. Timber Land Classification.

CFL	2,147	1.85%
Non CFL	27,100	23.32%
Non Forest	86,987	74.84%

2. Volume Estimate
Volume Class (bd. ft./acre)

Under 8,000	522	24.32%
8,000 - 20,000	1,451	67.57%
20,000 - 30,000	174	8.11%
30,000 - 50,000	0	0
Over 50,000	0	0

3. Site Index

Low (55-85)	1,451	67.57%
Medium (85-115)	696	32.43%
High (115-150)	0	0

4. Harvest Operability

Normal	1,335	62.16%
Non-Standard	522	24.32%
Inoperable	290	13.51%

C. WILDLIFE.

The Endicott drainage supports both brown and black bear and a good concentration of goat, all of which migrate freely through the pass between the area and Glacier Bay National Monument. There is a growing moose population which moved in recently from the Haines area. Eagle nesting density is high. Water fowl, located on the estuarine at the mouth of the river, are rated as fair in quantity and species variety. Due to the cold and windy weather and the deep snows, deer populations are low.

D. FISH.

Sport, commercial, and estuarine fishery values were rated by considering number of species, abundance, habitat condition, sport and commercial fisheries, and several other special values which are associated with certain watersheds.

Overall ratings for sport, commercial, and estuarine values for each VCU contained in the Endicott drainage are:

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
99	low	low	---
100	low	low	---
101	low	low	---
102	high	high	---
103	high	high	---
104	high	high	---
105	high	high	---
107	(Partial VCU)	high	Undetermined

Known fish populations are:

AREA	SPECIES	(ESTIMATED ESCAPEMENT*) POPULATION NOS.
Endicott	Coho, chum, pink, Dolly Varden	35,000 salmon 1,000 char

*Individual estimates not valid. Use only for rough estimate.

Of the six H.R. 39 proposals in the Chatham Area, the above population estimates identify the Endicott as lowest in fishery values.

E. MINERALS.

Value Comparison Units 101, 102, 103, 104, are located in a geologic region that is not favorable for metallic and related nonmetallic deposits. Existing data and geologic criteria indicate that this region has poor potential for lode type mineral deposits. Placer occurrences of platinum and chromite could exist in abundance.

Value comparison Units 99, 100, 105, and 107 are located in a geologically highly favorable region for metallic and related nonmetallic deposits. This is a broad region with widely scattered mineral occurrences. Value Comparison Unit 105 has 3 mineral claims with the last recorded activity in 1965. Minerals recorded are gold, silver, and lead. These are lode claims, located at Latitude $58^{\circ} 46'$, Longitude $135^{\circ} 17'$, at elevation 1200 feet, south of the Endicott River Bay.

Value Comparison Unit 107 has 53 mineral claims; 11 of the 53 are patented claims. In the upper northeast corner are located 30 lode claims of copper, lead, and radioactives. These claims have been active from 1955 to the present. One claim is located at Lance Pt. on the west shore of Lynn Canal. The last recorded activity on this claim was 1955. Two claims are located on the east shore of William Henry Bay of Lynn Canal, Latitude $58^{\circ} 42'$, Longitude $135^{\circ} 14'$. Last recorded activity was 1965. Eleven patented mineral claims are located at a 500 feet elevation in the south end of VCU 107. The mineral recorded is copper. This location was discovered in 1920; the last recorded activity was 1956. It is a lode claim, at Latitude $58^{\circ} 42'$, Longitude $135^{\circ} 15'$.

F. CULTURAL.

Archeological investigation of the proposed wilderness area has been essentially limited to historic use patterns and to modern southeast Native possessory rights. Prehistoric use investigation is very limited, consisting primarily of the work of Robert Ackerman (Washington State University) in the Glacier Bay area. The prehistoric site discovered there dates from 10,000 B.C. \pm . Thus, while archeological investigation of the Endicott drainage has not taken place, there is potential for important discoveries.

Archeological data is extremely incomplete for the Endicott and many other areas and it is stressed that the lack of known prehistoric sites should in no way be taken to mean that none exist.

November 1977

Stikine Area - Tongass National Forest

FACT SHEET

ETOLIN ISLAND

LOCATION

Etolin Island is in the Stikine Area of the Tongass National Forest. It is located approximately midway between Ketchikan and Petersburg and 10 miles southwest of Wrangell. Value Comparison Units included in this area are indicated on the enclosed map.

AREA CHARACTERISTICS

Etolin Island is approximately 35 miles long and 22 miles wide at its widest point. It is part of the Coastal Foothills character type, typified by numerous bays, coves, inlets and islands of varying size. Its visual character is highly variable but generally common to surrounding islands of comparable size. There are a number of lowland and alpine lakes as well as many favorable anchorages. The landform is highly variable, often precipitous with relatively few lowland plain areas. Valleys are characteristically narrow and steep sided. Streams tend to be short and steep with the exception of those at the heads of major bays. There exists a mixed forest-alpine-muskeg ecosystem.

Tongass Land Management Plan inventory data indicates that the area land types are distributed as follows:

<u>Land Type</u>	<u>Percent</u>
Private Land	less than 0.01 ~-
Freshwater	1.5
Estuarine	0.5
Muskeg	10.0
Alluvial	1.0
Valley bottoms & lowlands	29.0
Glaciated valley walls	43.0
Alpine	15.0
Total	<u>100.0</u>

LAND OWNERSHIP

The entire Etolin Island area is National Forest with the exception of a six acre parcel of patented land in Olive Cove. H.R. 39 data indicates the area contains 235,000 acres, TLMP inventory data indicates 234,423 acres of public land and six acres of private land.

MANAGEMENT AND LAND USE

The majority of current use in the area is by commercial fishermen, recreational boaters and other recreationists pursuing activities around the shorelines, inlet heads, islands and streams. There is current logging activity (which includes road construction) in the Olive Cove and Menefee Inlet areas as part of the Pacific Northern Timber Company's long term timber sale contract which expires in 1981. A microwave repeater facility and two passive reflectors are located in the general area of Burnett Inlet. A power withdrawal exists in the Navy Peak-McHenry Inlet area.

The Granite Timber Sale (a short term sale of 30 million board feet) is planned for September 1979 and will include Anita, Quiet, Mosman and Steamer VCU's, requiring approximately 25 miles of road. Three additional timber sales totalling 100 million board feet are currently listed on the proposed Stikine Area Five-Year Timber Sale Program. These proposals would require approximately 60 miles of roads which would be difficult to interconnect due to topographical constraints.

There is a private oyster farm operating on a special use permit in Three Way Pass. A private, non-profit aquaculture facility in Burnett Inlet has been approved but is not yet under construction. No State or Native land selections or applications for Native Historic Sites exist in the area.

One special use permit for a residence exists in the Olive Cove area.

Olive Cove Unit

SUMMARY OF RELEVANT RESOURCE INFORMATION

Recreation

The majority of the recreation opportunities in the Etolin Island area are associated with the water-shoreline complex, the heads of bays and main fish streams. Excellent potential exists for high country hiking along alpine ridges. Deer and black bear hunting and sport fishing have been the primary recreation activities.

A Forest Service public recreation cabin is located in Steamer Bay. A trail and unmaintained three-sided shelter provide recreational access to Kunk Lake.

Timber

Commercial Forest Land (CFL) totals 130,652 acres or 56 percent of the area's total acreage. The total volume estimate for the CFL is 2,560,155,000 board feet.

Soil Productivity for C.F.L. (Site Index)

Low	42 percent
Medium	51 percent
High	7 percent

Harvest Operability for C.F.L. (Logging Capability)

Normal	64 percent
Non Standard	26 percent
Inoperable	10 percent

Wildlife

Etolin Island has a diversity of high quality wildlife habitat. Big game species include black-tailed deer, black bear and wolf. The Alaska Department of Fish and Game has proposed a specially designated high country deer hunting area for the Virginia Peak-Kunk Lake area.

The southern portion of the island, including Brownson, Onslow and Stone Islands, is key winter habitat for deer. Mink, marten, otter and other furbearers are abundant along the shorelines. Waterfowl nesting and moulting occurs in lakes and lagoons throughout the island, while estuaries offer winter protection.

Fish

The area supports a significant commercial salmon fishery. The most highly productive salmon streams are located in Olive, Mosman, Burnett and McHenry Value Comparison Units. An Alaska Steep Pass Fish Ladder was installed on Navy Creek in 1975 by the U.S.F.S. which has been quite effective. Estuaries surrounding the island support commercial fisheries for crab, halibut and herring.

Commercial fishing, sport fishing and estuarine values are high throughout the area.

Minerals

The area is generally low in mineralization with insignificant mineral production potential. A moderate mineralization of gold and lead appears in the Steamer V.C.U.; however, production potential is unknown since claims are relatively new.

There is high mineralization with some uranium in the southern portion of the island (McHenry, Onslow and Canoe V.C.U.'s) but production potential is minor.

Cultural

The list of cultural resources on Etolin Island is extensive with varied types of sites (canneries, fur farms, fish traps, petroglyphs, Native villages and camps, middens, etc.) widely distributed throughout the area. The list cannot, however, be considered exhaustive because the entire area has not been intensively surveyed.

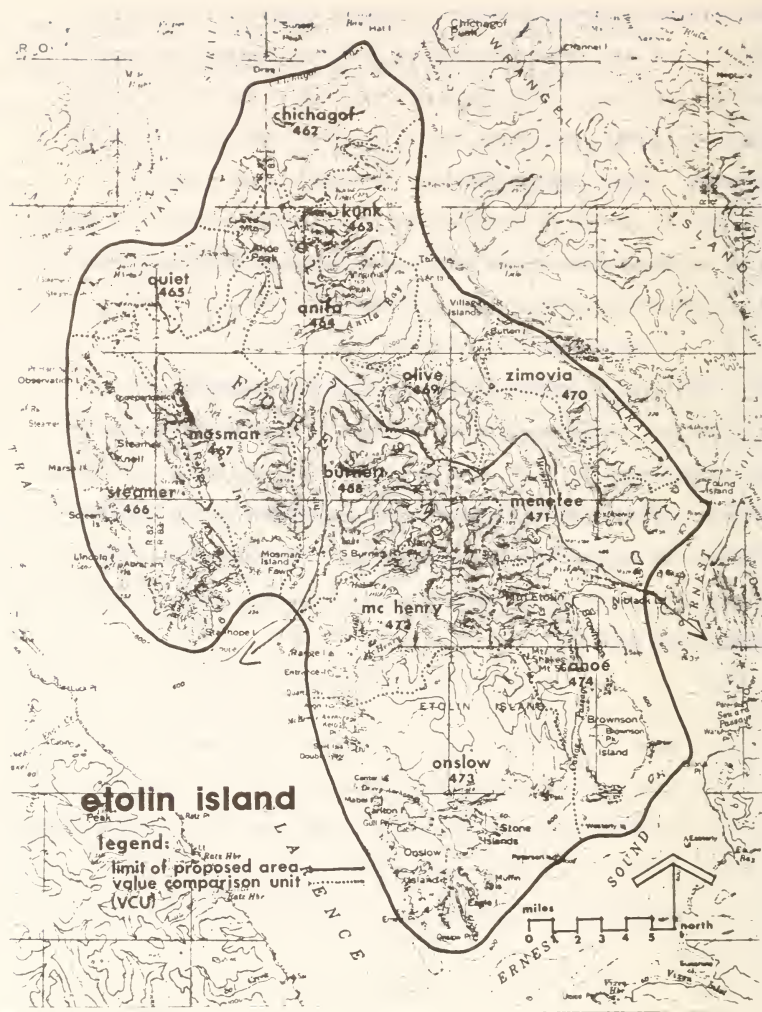
All confirmed petroglyphs are presently being considered for a thematic nomination covering all of southeast Alaska to the National Register of Historic Places.

PUBLIC INPUT 1971-77 -- APPARENT AGREEMENTS/CONFLICTS

Public concerns over the management of Etolin Island center on the need to protect anchorages, scenic values, sport and commercial fishing and water-oriented recreation. There seems to be general agreement on the need to protect these values, but general disagreement on how to go about it, and how much of the island to place in some sort of protective status.

ADF&G proposes maximum protection of fishery values in the Rocky Bay-McHenry Inlet area, and a high country deer hunt preserve for the Virginia Peak-Kunk Lake area. SEACC proposes protective status for the entire island, while CMAL would leave the entire island open to multiple use management. Other organizations and individuals stress favorite anchorages in various locations around the island's perimeter, or designation of all or parts of the island as Wilderness, Wilderness Study, NRA, or other less restrictive classification.

NOTE: Public input concerning this area was compiled from all available data, dating back to the fall of 1971 and the beginnings of public involvement on the old Tongass Forest Land Use Plan, and including input over the past two years on the development of the Tongass Guide and the Tongass Land Management Plan. The material has been analyzed and summarized to identify areas of apparent and potential agreement and conflict.



FACT SHEET ON THE KARTA AREA

I. Location.

The Karta River Drainage is on the eastern side of Prince of Wales Island, 45 miles west of Ketchikan and 15 miles east of Klawock. It is within the Ketchikan Administrative Area of the Tongass National Forest, and is in the coastal hills physiographic province of the Alexander Archipelago. The boundaries are the same as those of VCU numbers 605, 606, 607 and 608.

II. Description

The Karta River, Karta Lake and Salmon Lake are dominant features along the eastern end of the unit. To the west, the Klawock Mountains rise to 3,800 feet and provide a scenic backdrop to the rest of the unit. Plant and animal life is typical of islands in southeast Alaska. Spruce and hemlock are the dominant tree species, with red and yellow cedar mixed in on the poor sites.

The landtype breakdown is as follows:

	Acres	%
Freshwater	941	2.4
Estuarine	0	0
Muskeg	3502	9.0
Alluvial	543	1.4
Valley Bottom and Lowlands	8500	22.0
Glaciated Valley Walls	22018	56.9
Alpine	3199	8.3

III. Land Ownership

The entire unit is within the National Forest. The bill (HR 39) indicates there are 45,000, the VCU data has only 38,700 acres. HR 39 includes some 6,000 acres in the Klawock Mountains around Black Bear Lake. Some of this (about one-third) has been selected under ANSCA and should not be included in a Wilderness bill.

IV. Management and Use

Existing uses are primarily recreation and prospecting. In the past, a road was built from Karta Bay to the Flagstaff Mine. The first two miles of it is currently maintained as a trail. The area around Karta and Salmon Lake is a power withdrawal, but is not proposed for development. The entire unit is within the 50-year timber sale made in 1954 to the Ketchikan Pulp Company (now Louisiana Pacific-Ketchikan). Minor amounts of logging have occurred recently at Karta Bay and Sandy Point.

Under ANSCA, the village of Kasaan has selected 380 acres at Sandy Point. SEALASKA has also selected some ten acres at the mouth of the Karta River for its archeological value. There are 75 mining claims in the unit.

V. Summary of Relevant Resource Information

A. Recreation (to be written)

B. Timber

The unit contains about 24,197 acres 62.5% of commercial forest land. It contains an estimated 690 mbf of timber.

The commercial forest land breaks down as follows:

High Site, 8,416 acres, 34.8 percent
Medium Site, 10,437 acres, 43.1 percent
Low Site, 5,345 acres, 22.1 percent

Operability Class 1, 18,454 acres, 76.3 percent
Operability Class 2, 5,665 acres, 23.4 percent
Operability Class 3, 79 acres, 0.3 percent

C. Wildlife

Wildlife species in the Karta area are typical of Prince of Wales Island. Habitat types include alpine to estuarine zones. The most important areas are Salmon Lake and adjacent wetland; Karta River and Karta Bay. Waterfowl use the bay and lake for nesting and resting, black bear use the grass flats for foraging, and the bay supports a population of harbor seal. Wildlife ratings by VCU are:

605-2
606-2
607-4
608-2

The Klawock Mountains are traditionally important for early season alpine hunting for blacktail deer.

D. Fish

The fisheries resources of the Karta River and its tributaries are significant both for sport and commercial values. The system supports pink, chum, sockeye and coho

salmon. Records indicate pink salmon escapements up to 250,000 fish and 100,000 for chum salmon. Several thousand sockeye salmon support a locally important subsistence fishery. Sport fishery values for the Karta system are also high due to steelhead and cutthroat trout populations. Dolly Varden and rainbow trout also exist. The TLUMP VCU rating system has given this entire system a score of 5 for both commercial and sport fisheries.

E. Minerals

There are 75 mining claims in the unit. They are for both precious and metallics and are primarily found in the southern half of the unit. Potential for non-metallics and fossil fuels is low.

The VCU ratings for minerals potential are as follows:

605 - 3
606 - 5
607 - 5
608 - 5

F. Cultural

1. The old Flagstaff Gold Mine, operated until 1941.
2. The Baronovich Cannery Site, on Karty Bay. (Designated Craig 55 in the Alaska State Archeological Site Inventory.)
3. Old Indian Village site and Petroglyphs in Karta Bay (selected by SEALASKA under ANSCA).

Karta System (102-60-87)

This system is located on the east side of Prince of Wales Island in the Ketchikan Forest Service District and drains into Karta Bay (map reference Craig C-2, C-3). The system includes Andersen Lake and Creek, and McGilvery Creek which drains into Salmon Lake. Salmon Lake then drains into Karta (Little Salmon) Lake and into Karta Bay via the Karta River.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, rainbow trout, and Dolly Varden trout are abundant in various portions of the system. Pink and chum salmon are periodically abundant in the lower portions with escapements ranging from 1,000 to more than 10,000. The highest recorded escapement of pink salmon was over 100,000.

Both Andersen and McGilvery creeks support fair size runs of red and silver salmon. Trout are abundant throughout the system with excellent spring and fall runs of steelhead in the Karta River. Andersen Lake does not support any anadromous species but does have resident populations of Dolly Varden and cutthroat trout.

There are three Forest Service cabins in the area, and they received 2,200 visitor-days of use in 1975. The high recreational use of the area and the substantial populations of the various fish species makes this one of the most important watersheds in Southeast Alaska.

MANSFIELD PENINSULA

I. LOCATION.A. CHATHAM AREA, TONGASS N.F., REGION 10, ALASKA.

The Mansfield Peninsula NRA proposal is the northern portion of Admiralty Island, delineated by Hawk Inlet which intersects the island from the western shoreline to form the Peninsula. The Mansfield Peninsula is approximately 5 miles in width and extends northward approximately 25 miles to Point Retreat, 10 miles from the city of Juneau, the capital of Alaska.

B. RELATIONSHIP TO COMMUNITIES.

There is one small community on the Mansfield Peninsula, located at FUNTER BAY, midway on the western coastline of the Peninsula. The population of approximately 20 persons is composed primarily of non-native, retired individuals. Several residents are fishermen and a few are associated with mining activities in the area. Until recently there was a salmon cannery at HAWK INLET which employed 40-60 people during the summer season. Since the cannery burned, it is occupied only by a resident watchman.

Residents of ANGOON, which lies slightly over 40 miles south of the Peninsula at the mouth of Kootznahoo Inlet, indicate that they use the Mansfield Peninsula primarily for deer hunting.

With an estimated population of 481 in 1975, Angoon experienced a 4.4% population decrease in the period 1970-1975. In 1972, 72.8% of Angoon's population was Indian (Tlingit, Haida, or Tsimshian) with 2.0% Aleut, .4% Eskimo, and 1.2% other. The remaining 22.7% of the population was white. These State census figures indicate a decrease in the Native population from 94.3% in 1970.

Most of the people of Angoon follow a subsistence lifestyle which is focused on the sea and the shoreline. In the past, a few people regularly used the interior of the island to trap beaver and other animals for pelts and to collect special plants for medicine; however, some traveled much farther, primarily to hunt deer. Locations mentioned most often beyond the immediate Angoon area were Hawk Inlet, Square Cove, and Whitewater, Chaik, and Hood Bays. In the same socio-economic survey, it was found that over half of the residents look to subsistence activities for one-quarter or more of their food.

The State of Alaska Department of Labor reported that the 1976 annual average unemployment in Angoon was 37.7% of the total labor force. Of those working, 63% were employed by government agencies, primarily State of Alaska and local government groups.

Because of its proximity to JUNEAU, the Mansfield Peninsula is used extensively by residents of the capital city for recreation purposes. The Alaskan capital had a reported population of 17,714 in 1975. This represents a +30.7% increase during the period 1970-1975. In 1970, 84.3% of the population was white; 10.9% Indian; 0.5% Aleut; 0.8% Eskimo; and 3.5% other. Juneau's economy is stabilized by a high proportion of State and Federal workers and had a reported unemployment rate in 1974 ranging from 10.4% in February to 4.5% in August. With the cancellation of the Champion International Timber Sale and the related pulp mill at Berner's Bay and with the proposed capital move, Juneau's economic future is extremely uncertain.

Many Juneau residents are strongly oriented toward outdoor recreation pursuits which is indicated by a large increase in the number of small boats and cruisers during the last decade.

Primary use of the Peninsula is for sport hunting, particularly deer and water fowl. Privately owned hunter and recreation cabins are heavily used by Juneau sportsmen and conservationists.

C. VCU's INCLUDED.

125-130 inclusive plus a small part of VCU 131.

II. CHARACTER OF AREA.

A. PHYSIOGRAPHIC REGION:

The Mansfield Peninsula, with the rest of Admiralty Island, is classified in the Admiralty-Chichagof Physiographic Region.

B. DESCRIPTION.

1. PHYSIOGRAPHIC FEATURES.

The Peninsula includes one area, south of Funtier Bay, which reaches an elevation of 3000 feet at Robert Barron Peak. The remainder of the Peninsula is relatively low elevation, general forest zone with characteristically rolling country and extensive muskeg and scrub timber.

The western coastline of the Peninsula lies within a rain-shadow. Thus, while Point Retreat, at the northern tip of the Peninsula, reports annual precipitation of 79 inches and an average annual temperature of 42.2° F, the Funtier Bay area is notably drier and colder. Funtier Bay experiences annual precipitation of 40-60 inches.

The Peninsula has a relatively regular coastline, interrupted by several significant waterways and bays. Beginning at the southern portion of the west coast is Hawk Inlet, a narrow waterway which clearly delineates the Peninsula from the remainder of the island. Midway up the western coast is Funtier Bay with several extremely small coastal

islands. Along the eastern coastline of the Peninsula, Barlow Cove extends from Point Retreat into the Peninsula approximately 5 miles. Finally, Young Bay is defined by the southeastern shoreline of the Peninsula and the Point Young northern coastline of Admiralty Island.

2. ECOLOGICAL FEATURES.

The Mansfield Peninsula is an area of relatively low-lying topography with vegetation types and animal species typical of scrub forest and muskeg terrain. Characteristic vegetation includes the lodgepole pine, mountain hemlock, and Alaska cedar. The surface vegetation of the muskegs includes sedges, grasses, and sphagnum moss.

The most significant wildlife resource is deer with much of the Peninsula offering prime deer habitat area. Water fowl are also abundant along tide flats.

3. LANDTYPE BREAKDOWN. (VCU's 125-130 and part of 131.)

LANDTYPE	NO. OF ACRES	% VCU
Census Fresh Water	0	0
Other Fresh Water	140	.2
Estuarine	99	.2
Muskeg	12,697	21.2
Alluvial	21	0.1
Valley Bottom Lowlands	17,410	31.9
Glacial Valley Walls	27,011	38.9
Alpine	4,911	7.5
ACRES	62,288	100.0

III. LAND OWNERSHIP.

A. ACRES BY OWNERSHIP

TOTAL N.F. LAND ACRES	CENSUSED FRESH WATER BODIES > 40 ACRES	OTHER WATER < 40 ACRES	PRIVATE LAND	TOTAL ACRES WITHIN BOUNDARY
62,302	0	44.9	1,090	63,436

B. DIFFERENCE IN ACRES IN BILL AND ACRES BY VCU.

Estimated acres are not provided in H.R.39.

IV. MANAGEMENT AND USE.

A. EXISTING USES.

In the past, the Mansfield Peninsula included several developed areas. Today the Funter Bay Mine and other developed mining sites are abandoned and in a state of collapse; the Hawk Inlet Cannery has burned with no known plans to rebuild. Remaining is the single settlement at Funter Bay where occupational use is combined with hunting and fishing activities.

There are 15 special-use permits currently issued on the Peninsula, all but one for recreation residences and cabins. Five are at Funter Bay (including one non-recreation residence permit); 2 are at Barlow Cove; 4 are on Bear Creek; and the remaining permits are located individually at Pt. Symonds, Piling Point, and Hawk Inlet. There are no Forest Service public recreation cabins on the Peninsula.

The Coast Guard maintains navigational beacons along the shoreline; there is an unmanned lighthouse at Point Retreat, on the northern tip of the Peninsula. There is no road system.

Thus, except for recreational users, the primary current activity on the Peninsula is minerals exploration.

B. MANAGEMENT COMMITMENTS.

Except for the 15 special-use permits, there are no contractual commitments.

C. USE PROPOSALS.

1. On September 26, 1977, USDA recommended to the Subcommittee on Fisheries, Wildlife Conservation, and Environment, Committee on Merchant Marine and Fisheries, House of Representatives, that the Mansfield Peninsula, including the Young Bay Experimental Forest area, be excluded from the proposed wilderness on Admiralty.
2. It is believed that potential exists for aquaculture sites in most areas contained in H.R. 39. Detailed proposals are being developed by regional aquaculture groups.
3. The Peninsula hosts an interconnected system of corridors that could tie into the west side Admiralty corridor in VCU 131.

D. LAND SELECTIONS - STATE AND NATIVE.

Shee Atika and Goldbelt, Inc. will have some selections on Admiralty Island. Specific locations are not known at this time.

V. SUMMARY OF RELEVANT RESOURCE INFORMATION.A. RECREATION.1. FOCUS OF PRESENT USES.

The Mansfield Peninsula is perhaps the most popular boating, fishing, and hunting area in easy reach of Juneau recreationists. Funter Bay and Hawk Inlet on the west coast of the Peninsula are popular destination anchorages and afford consistently good opportunities for fall hunting. They also provide convenient transient anchorage for Juneau boaters traveling to and from Glacier Bay. The eastern waters of the Peninsula are extremely popular for sport fishing and pleasure boating. Fall hunting, primarily for deer, is popular from Barlow Cove to Admiralty Cove.

2. RECREATION FACILITIES.

Recreation facilities are oriented to a few private cabins scattered throughout the Peninsula and small picnic areas. Most recreationists use their small boats or tents as overnight facilities.

3. UNIQUE ATTRACTION FEATURES.

Aside from the Peninsula's proximity to Juneau and its subsequent recreational popularity there are few apparent unique attractions. The Peninsula is typical of much of the low, rolling, and somewhat blocky landscapes of southeast Alaska. Several prominent old growth forest stands exist within low scrubby muskeg regions. Perhaps the most interesting features of the Peninsula are its deep protected bays and its scenic island complex above Barlow Cove and Point Retreat, the site of a now abandoned light station.

4. WILDERNESS QUALITY RATING.

VCU 125 - 2	127 - 2	129 - 3
126 - 3	128 - 4	130 - 2

B. TIMBER.1. TIMBER LAND CLASSIFICATION.

	NO. OF ACRES	% VCU
CFL	25,914	45.4
Non-CFL	22,453	41.8
Non-Forest	8,057	12.8

2. VOLUME ESTIMATE.

VOLUME CLASS (Bd.ft./acre)	NO. OF ACRES	% VCU
Under 8,000	1,681	8.6
8,000 - 20,000	11,359	44.6
20,000 - 30,000	8,736	32.5
30,000 - 50,000	4,148	14.3
Over 50,000	0	0

3. SITE INDEX.

	NO. OF ACRES	% VCU
Low (55-85)	10,645	41.53
Med (85-115)	11,260	44.63
High (115-180)	4,008	13.84

4. HARVEST OPERABILITY.

	NO. OF ACRES	% VCU
Normal	17,555	66.1
Non-Standard	4,521	18.6
Inoperable	3,837	15.3

C. WILDLIFE.

Because of its prime habitat, the Mansfield Peninsula is supportive of excellent deer populations. Brown bear, in large numbers on Admiralty Island, are encountered on the Peninsula, although less frequently. Water fowl are rated good and are found at the heads of most bays with the head of Hawk Inlet the most well-populated location. Fur bearers and bald eagle nesting sites are located on the Mansfield Peninsula.

D. FISH.

Sport, commercial, and estuarine fishery values were rated by considering number of species, abundance, habitat condition, sport and commercial fisheries, and several other special values which are associated with certain watersheds. The table below shows the overall ratings for sport, commercial, and estuarine values for each VCU included in the proposal for the Mansfield Peninsula:

VCU*	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
125	low	low	low
126	low	low	high
127	low	low	---
128	med	med	undetermined
129	med	med	undetermined
130	low	low	---

*Rating for the portion of VCU 131 included in the proposal has not been calculated until exact boundaries are known.

Fish species identified on the Mansfield Peninsula are coho, chum, pink, cutthroat, Dolly Varden, Rainbow/Steelhead. Estimated salmon escapement is 55,000; trout and char escapement, 2,000. These estimates, for use only as approximate comparison, indicate low fishery values on the Peninsula when compared to estimates for the remainder of Admiralty Island of 10,000,000 salmon and 150,000 trout and char.

E. MINERALS.

VCU's 125, 126, 127, 128, 129, and 130 are within a geologic region that is highly favorable for metallic and related nonmetallic deposits. This is a broad region with widely scattered mineral occurrences. VCU's 125, 127, and 130 have no recorded exploration of mineral claims. Of these three VCU's, 127 has a high potential for discovery of lode type deposits. VCU's 126, 128, and 129 contain 348 mineral claims, 64 of which are patented claims. Based on an average of 20 acres per claim, approximately 6,960 acres are under claim and 1,280 acres under patented claim.

VCU 126, the Funter Bay area, has 190 mineral claims and all of the 64 patented mineral claims mentioned above. Minerals recorded as located are gold, silver, copper, lead, nickel, and cobalt. Recorded exploration within this VCU indicates a high degree of intensity and interest in minerals. A single large block of 87 claims located in the mideastern portion of VCU 126, makes up part of the total 190 mineral claims. These are lode claims and were first recorded in 1966.

VCU 129, including the east-central portion of the Peninsula, has four scattered mineral claims in addition to having a portion of a large block of 87 claims on its southwest border.

VCU 128, the south-central area extending from Robert Barron Peak to Hawk Inlet, has 236 mineral claims. Based on 20 acres per claim, they could encompass 4,720 acres. Many of these mineral claims are recent finds and active to date, indicating an increased interest in minerals in this area.

F. CULTURAL.

Anthropological investigation of Admiralty Island was conducted by Frederica DeLaguna in the late 1950's (Bur. Amer. Ethnol. Bull. 172, 1960 and 1963); her work was concentrated, however, in the Angoon area and to sites on the southern portion of the island. The four known sites on the Mansfield Peninsula are:

VCU	# OF SITES	SITE #	DESCRIPTION
125	2	Jun-060(1064)	Village
		Jun-084	Lighthouse
126	2	Jun-116	Admiralty mine
		Jun-029	Cannery site 1891

FACT SHEET ON THE MISTY FIORDS AREA

- I. The Misty Fiords area is located in the Ketchikan Administration Area of the Tongass National Forest. The western boundary lies about 22 air miles east of Ketchikan. The town of Hyder is near the northeastern border and is accessible by road from the lower 48 states and Canada. The Value Comparison Units (VCU's) contained within it are those numbered 730, 769 to 863, and 867. (See the attached map of the area.) An area of about 20,000 acres in the Keta River drainage around Quartz Hill is temporarily excluded because of a valuable mineral prospect located there.
- II. The unit is primarily within the Coastal Range physiographic region of the Alexander Archipelago. Most of it is on the mainland, but 200,000 acres are on the eastern side of Revillagigedo Island. The unit is characterized by deeply fiorded inlets and in the central portion (Granite Fiords) by spectacular cliffs, waterfalls, and other scenic grandeur.

Extensive areas of the unit (39 percent) are Alpine, with recent glaciation evident. Lakes are relatively numerous in the central, southern and western portions, but are nearly non-existent in the eastern and northern portions. The forested areas are predominately of spruce, hemlock and cedar which are common throughout southeast Alaska. Black cottonwood, subalpine fir and Pacific silver fir are also found. In the northern part of the unit, the Unik River contains a lava flow active within the last century.

Landtype Breakdown of Misty Fiords:

	Acres	Percent
1. Freshwater	49,288	2.16
2. Estuarine	3,513	.15
3. Muskeg	139,389	6.13
4. Alluvial	25,377	1.11
5. Valleybottoms & Lowlands	170,220	7.46
6. Glaciated Valley Walls	1,010,047	44.26
7. Alpine	<u>883,745</u>	38.73
	2,282,029	100.00

III. Landownership.

A few small parcels of private land are within the boundaries of this unit. These are near the mouths of the Unuk and Chickamin

Rivers and at Hidden Inlet on Portland Canal. The VCU boundaries correspond with those in the proposed legislation except for the 20,000 acre exclusion at Quartz Hill.

IV. Management and Use.

A special use permit for a recreation lodge exists on Humpback Lake. The State of Alaska proposes selecting 324 acres in the unit at Manzanita Bay for possible recreational development. There are 12 Forest Service recreation cabins in the unit. A road has been proposed from Canada down the Unuk River to Boroughs Bay several times over the last 40 years. There are no commitments that have been made in the area; however, much of the timber has been included in potential yield calculations. This is an indirect commitment to the people dependent on that timber for jobs.

V. Summary of Relevant Resource Information.

A. Recreation

B. Timber

Commercial Forest Land 549,797 acres 23.74 percent
 Total Volume Estimate 10,645,401,080 mmbf
 CFL in High Site 26,219 acres 4.84 percent
 CFL in Medium Site 177,536 acres 32.77 percent
 CFL in Low Site 338,042 acres 62.39 percent
 Operability Class 1 191,299 acres 35.31 percent
 Operability 2 152,829 acres 28.21 percent
 Operability 3 197,669 acres 36.48 percent

C. Wildlife

The mainland area supports populations of all species of wildlife found in southeast Alaska. Significant species include moose, brown bear, mountain goat, wolverine, lynx, and several bird species found only on the mainland.

The Unuk River system is particularly unique, serving as an avenue for faunal and floral influence from interior British Columbia, and supports a substantial population of moose and brown bear.

The Chickamin River system also supports a viable population of moose.

Nearly all rivers supporting anadromous fisheries also have brown and black bear populations.

Sitka blacktail deer are found only along the Behm Canal and Revilla Channel, with little or no overlapping ranges with the mountain goats.

Population densities of mountain goat are traditionally some of the highest in Southeast Alaska.

Harbor seal populations are relatively high, with major use areas in the large bays and estuaries.

The Revilla portion of the area contains no brown bear, moose, or other species associated with the mainland. Deer numbers are traditionally low along the northern portion of the Behm Canal. This portion is of generally average wildlife importance.

D. Fish

The Misty Fiords area of Southeast Alaska is characterized by rugged mountainous terrain and large river systems. The area's streams provide a significant contribution to Alaska's fisheries resources. Major runs of Chinook, coho, pink and chum salmon and to a lesser extent sockeye salmon return to the area's streams and support large commercial fisheries. Several streams have spawning returns of pink and chum salmon in excess of 250,000 fish. These include the Wilson, Blossom, Keta, Martin and Filmore rivers and Humpback, Hidden Inlet and Naket creeks. Major Chinook salmon streams include the Unuk, Chickamin, Rudyard, and Wilson rivers. The Unuk and Chickamin rivers are also important coho salmon systems.

The area's streams also provide important sport fisheries values. Important sport fish species are cutthroat and rainbow

trout, steelhead, Dolly Varden and occasionally grayling. Pink, coho and Chinook salmon also support sport fisheries throughout the area.

During the TLUMP Process, 97 value comparison units (VCU's) were examined for their commercial and sport fishery values in the Misty Fiords areas. The following table summarizes the relative commercial and sport fishery values with five being the highest value.

VCU RATINGS

Total Score	COMMERCIAL FISHERIES		SPORT FISHERIES	
	97		97	
	1-14	14%	1-14	14%
	2-24	25%	2-24	25%
	3-4	4%	3-18	19%
	4-17	18%	4-10	10%
	5-38	39%	5-31	32%

The Misty Fiords area also contains several important estuarine areas. These are important producers of shrimp and Dungeness crab. These estuaries, especially those associated with the larger stream systems are important rearing areas for juvenile pink and chum salmon.

E. Minerals

Potential for metallic minerals is moderate to high throughout the area. Non-metallics and fossil fuels are low. The Quartz Hill area (VCU 842) contains a molybdenum deposit which appears to be economic to develop at the present time. It has one of the highest potentials for major development of any area in Southeast Alaska. (In the latest version of HR 39 it is temporarily excluded from Wilderness Classification.)

Following are the minerals potential ratings* by VCU:

Rating

- 1 VCU 789 (1 Total)
- 2 None
- 3 VCU's 770, 772, 774-785, 787, 788, 790-792, 794, 797, 798, 800-803, 809-814, 816, 817, 820-823, 825, 827-829, 831-834, 836, 838-840, 843-857, 859-862, and 867 (70 Total).
- 4 VCU's 730, 771, 773, 786, and 824 (5 Total)
- 5 VCU's 769, 793, 795, 796, 799, 804-808, 815, 818, 819, 826, 830, 835, 837, 841, 842, 858, 863 (21 Total)

*These are on a scale of 1 to 5, 1 being lowest, and 5 highest.

November 1977

Stikine Area - Tongass National Forest

FACT SHEET

STIKINE-LECONTE

LOCATION

The Stikine-LeConte area lies along the east central boundary of the Stikine Area, Tongass National Forest. The southern boundary is five miles north of Wrangell and the western boundary is eight miles east of Petersburg. The Tongass Land Management Plan Value Comparison Units (VCUs) included in the area (VCU 490 through 500) are indicated on the enclosed map.

AREA CHARACTERISTICS

The area is dominated by a large river valley (the Stikine) cutting through the coastal range separating Alaska from Canada. The Stikine River's lower 27 miles are in Alaska. Approximately 11 miles in its lower portion spread from a three mile wide river bottom to a delta nearly 17 miles in width. The river has many changing channels interspersed with numerous small islands and waterways. A key feature of the area, not in the river valley, is LeConte Glacier which is the southernmost tidewater glacier in North America. Some of the icefields feeding this glacier lie atop 4,000 foot mountains forming the north slopes of the Stikine River Valley. The topography of the area varies from flat grassy bottomlands and shorelines to steep rocky mountains.

The area is in the coastal range visual character type. There is a great variety of vegetation ranging from the Stikine marshes, large grassy tidal meadows, to conifer covered slopes, to deciduous tree cover in the upper river drainages and including the varieties of alpine ecosystems found in the high country.

Tongass Land Management Plan inventory data indicates that the area land types are distributed as follows:

<u>Land Type</u>	<u>Percent</u>
Private Land	Less than 0.01
Freshwater	7.0
Estuarine	3.0
Muskeg	1.0
Alluvial	8.0
Valley Bottoms & Lowlands	7.0
Glaciated Valley Walls	29.0
Alpine	45.0
Total	<hr/> 100.0

Note: See Attachment #1 for breakdown for these figures into the LeConte area (Horn and LeConte VCUs) and the Stikine area (all remaining VCUs).

LAND OWNERSHIP

The area is predominantly National Forest with the exception of small tracts of patented land on portions of the islands in the delta.

Utilizing Tongass Land Management Plan area calculations, it was determined that the area contains 300,065 acres. HR-39 data indicates the acreage of the area to be 490,000 acres.

Note: The great difference in acreage may be due to a possible change in the boundary of the HR-39 area to go beyond the forest boundary to the U.S.-Canadian border.

MANAGEMENT AND LAND USE

This area is extremely popular for recreational boating and hunting. For this reason many cabins have been built in the area including 12 Forest Service public use recreational cabins, a special use summer homesite group, 14 private summer cabins under special use permits and administrative cabins used by the Alaska Department of Fish and Game and the Forest Service. The area along the Stikine River Valley has been proposed and is being considered for a possible road to link the United States (lower 48 states) and Canada to southeast Alaska. A treaty with Great Britain in 1871 assures that the river shall remain free and open for the purposes of commerce. The U.S. Army Engineering District, Alaska, considers Goat Creek, a tributary of the Stikine River, as a known potential hydroelectrical site. The State of Alaska has indicated potential electric power transmission line corridors through the area.

No other developments are known to be planned for the area (timber sales, roads, utility lines, aquaculture sites, etc.).

No state or native land selections exist or are contemplated.

SUMMARY OF RELEVANT RESOURCE INFORMATIONRecreation

The Stikine River is a navigable river for over 125 miles. Recreational boaters make extensive use of the area. The Forest Service, under a cooperative agreement with the Corps of Engineers, maintains the U.S. portion of the river by removing fallen trees from the river course (sweepers) to ensure safe navigation. Recreation cabins in the area receive heavy use due to excellent hunting and fishing and drier climate. Two areas of active hot springs along the Stikine River have great public attraction as swimming areas. Garnets are to be found in the southcentral part of the area. LeConte Glacier is an important recreational attraction. Sightseeing tours, via water and air, are available. Goat hunters are attracted to the Horn Cliffs and Wilkes Range areas on either side of LeConte Bay.

Timber

Commercial Forest Land (CFL) totals 55,258 acres or 18.5 percent of the total acreage. Total volume estimate for the CFL is 1,007,154,000 board feet.

Soil Productivity for C.F.L. (Site Index)

Low	48 percent
Medium	47 percent
High	5 percent

Harvest Operability for C.F.L. (Logging Capability)

Normal	2 percent
Non Standard	7 percent
Inoperable	91 percent

Note: See Attachment #1 for breakdown of these figures into the LeConte area (Horn and LeConte VCUs) and the Stikine area (all remaining VCUs).

Wildlife

The Stikine River supports a huntable moose population. Mountain goats, black bear, brown bear and wolves inhabit the river bottom and the surrounding high country. The wetland areas adjacent to the river support nesting and moulting waterfowl. A variety of hawks and owls use the area for nesting and feeding, while bald eagles concentrate during fish runs.

The Stikine River Delta is the most important wintering and spring resting area for waterfowl between Juneau and Ketchikan. Snow geese, Canada geese, several species of ducks, sandhill cranes and snipe are abundant. Waterfowl habitat improvement projects such as pothole blasting and check dam construction have been carried out on the Stikine

Waterfowl Management Area in the Stikine River delta. The unit is managed under a cooperative agreement by the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service and the U.S. Forest Service.

There is a large seasonal population of seals near LeConte Glacier. Sealions utilize the rocks at the base of Horn Cliffs as a haulout area. Humpback and killer whales are frequently seen in Frederick Sound.

Fish

The Stikine River supports good populations of five species of salmon and two species of trout. It is the major chinook salmon stream in the area. The Alaska Department of Fish and Game maintains a chinook salmon egg taking wier and a counting wier on the river system.

The large river delta provides a rich nursery area for commercially important finfish and shellfish populations. The delta is also a major commercial shrimp producing grounds.

Sport fishing, commercial fishing and estuarine values in the area are high.

Minerals

Generally the area is only moderately mineralized with insignificant production potential. There exist, however, hot springs in the Stikine

River area with Chief Shakes Natural Hot Springs being the most significant (Ketili VCU). Garnets are to be found in a highly mineralized area with high production potential in the Garnet Mountain area (Cottonwood VCU).

Cultural

There are a few native village sites in the Stikine River Valley. Otherwise there are very few recorded cultural resources in the area. The area has not, however, been extensively surveyed; therefore, the available information cannot be considered to be exhaustive.

PUBLIC INPUT 1971-77 -- APPARENT AGREEMENTS/CONFLICTS

There seems to be general and nearly unanimous agreement among all segments of the public familiar with the central southeast Alaska mainland that those lands and waters included in the Stikine-LeConte area do not constitute a single, discrete unit; nor would a single land management designation necessarily be considered appropriate for the entire area.

Local and regional publics seem more inclined to consider the Stikine River as a special area defined by its watershed, and LeConte Bay and Glacier (including Horn Cliffs) as a separate area. An additional division is often made, isolating the Stikine Flats Waterfowl Management Unit in the Stikine River delta.

Stikine River -- Local and regional public input indicates general agreement that the scenic, recreation, fish and wildlife values are paramount in the Stikine drainage, and that future management should emphasize retention of the Stikine River as a recreation area with traditional modes of access allowed (float plane and power boat).

There appears to be general agreement that extensive logging would be inappropriate within the drainage, and that timber harvest (if permitted at all) should be restricted to areas away from the river and its tributaries for maximum protection of other resource values.

While no unanimous agreement exists for a transportation corridor up the river, there is and has been for many years a significant expression of support for retaining that option. Stikine River road access to British Columbia has long been supported by the Canadian Government, local elected officials, land management and transportation agencies and a large segment of the local population. Mineral exploration and development, commerce and general public access to Canada and the lower 48 are all cited as reasons for maintaining the future development option.

A large share of those commenting on Stikine River management see the river as a popular recreation, hunting and camping area that will increase in popularity over the years. They generally oppose restrictions on traditional access modes and favor further development (on an as-needed basis) to provide public use cabins, emergency shelters -- and, at

some future date, a road link with Canada. With the exception of the road link, similar uses are proposed by many who support Wilderness classification for the river.

The more extreme positions are reflected in SEACC and CMAL proposals. SEACC proposes that the Stikine-LeConte area be given formal Wilderness designation, while CMAL proposes National Recreation Area status for the northern portion of the Stikine River drainage, leaving the south side open for full multiple use management.

Locally, the emphasis leans toward an interdisciplinary approach to identify and develop the most appropriate management plan for the river because of the value and complexity of its resources, its proximity to Wrangell and Petersburg, and the high use the area receives.

Regionally, individuals and organizations seem more inclined to recommend immediate and formal designation as Wilderness or Wild and Scenic River, with restrictions on logging, road building and other development.

LeConte Bay, Glacier, and Horn Cliffs -- This area seems to be one of the least controversial on the Tongass Forest in terms of public attitudes toward future management.

The public seems to consider the LeConte-Horn Cliffs area an ideal candidate for some sort of special management classification on the basis of its spectacular scenic qualities, its unique qualification as southernmost tidewater glacier on the continent, and its potential for research and educational use.

There have been no significant proposals by industry or federal agency to develop timber harvest plans for the area; roading is impractical in all but a few scattered locations; water access is difficult, and there are no safe anchorages.

Land classification proposals range from formal Wilderness designation to some type of special management category recognizing geological or research values. Most recent public comment indicates general agreement on Wilderness status (CMAL proposes Wilderness Study).

Note: Public input concerning this area was compiled from all available data, dating back to the fall of 1971 and the beginnings of public involvement on the old Tongass Forest Land Use Plan, and including input over the past two years on the development of the Tongass Guide and the Tongass Land Management Plan. The material has been analyzed and summarized to identify areas of apparent and potential agreement and conflict.

Attachment #1

FACT SHEET

STIKINE-LECONTEData Breakdown for LeConte Area and Stikine Area

Value Comparison Units Contained on Each Area

LeConte -- LeConte (491), Horn (490)

Stikine -- Wilkes (492), Stikine (493), Shakes (494),
Ketili (495), Farm (496), Cottonwood (497),
Andrew (498), Goat (499), Kikahe (500).LECONTE AREA

Percentage of Area by Land Types

Private Land	0.0
Freshwater	0.0
Estuarine	0.0
Muskeg	2.0
Alluvial	0.5
Valley Bottoms & Lowlands	3.5
Glaciated Valley Walls	58.0
Alpine	36.0
Total	<u>100.0</u>

Total Acreage -- 85,584 Acres

Total C.F.L. -- 12,835 Acres

Percent of Total Area in C.F.L. -- 15 percent

Total Timber Volume Estimate for C.F.L. -- 210,527,000 Board Feet

Soil Productivity for C.F.L. (Soil Index)

Low	67.5 percent
Medium	30.0 percent
High	2.5 percent

Harvest Operability for C.F.L. (Logging Capability)

Normal	10.0 percent
Non Standard	9.0 percent
Inoperable	81.0 percent

STIKINE AREA

Percentage of Area by Land Types

Private Land	0.7
Freshwater	8.6
Estuarine	3.9
Muskeg	0.7
Alluvial	9.2
Valley Bottoms & Lowlands	7.3
Glaciated Valley Walls	22.4
Alpine	47.2
Total	<u>100.0</u>

Total Acreage -- 214,481 Acres

Total C.F.L. -- 42,423 Acres

Percent of Total Area in C.F.L. -- 19.8 percent

Total Timber Value Estimate for C.F.L. -- 796,627,000 Board Feet

Soil Productivity for C.F.L. (Site Index)

Low	44.0 percent
Medium	49.3 percent
High	6.3 percent

Harvest Operability for C.F.L. (Logging Capability)

Normal	0.5 percent
Non Standard	6.3 percent
Inoperable	93.2 percent



WEST CHICHAGOF/YAKOBI

I. LOCATION.A. CHATHAM ADMINISTRATIVE AREA, TONGASS N.F., REGION 10, ALASKA.

The West Chichagof/Yakobi Island wilderness proposal occupies the extreme northwest portion of the Alexander Archipelago of southeastern Alaska. West Chichagof comprises the western third of Chichagof Island that fronts on the broad and often times turbulent North Pacific. On the leeward side of 3,000 foot peaks the large, protected waters of Lisianski Inlet and Hoonah Sound lie in peaceful contrast to the outer coast. Slopes of the eastern exposure are typical of a large part of the southeastern Alaska landscape; a dark green rainforest, interspersed with muskeg areas, blankets these mountains from sea level to approximately 2,400 feet.

On Yakobi Island, a gradual sloping plane rises southeastward to 2,500 foot peaks near Lisianski Inlet. Somewhat in contrast, high peaks on West Chichagof rise abruptly from the seashore and slope to the east.

The entire area is located within the Chatham Area of the Tongass N.F. with approximately 294,564 acres located in the Greater Sitka Borough and the remainder in the unorganized borough.

B. RELATIONSHIP TO COMMUNITIES.

There are no communities within the boundaries of the proposed area; however, numerous towns and villages are within the user area to be effected by land management decisions. Principal among these communities are: Sitka, 30 miles to the south; Pelican, fronting the north-east border of the area in Lisianski Inlet; and Elfin Cove, approximately 10 miles north of the tip of Yakobi at Port Althorp.

SITKA, located on the west coast of Baranof Island, is 20 minutes from Juneau by jet, 80 minutes from Anchorage and almost 2 hours from Seattle.

Sitka's 1975 population was 6,595, with a growth rate during the period 1970-1975 of 8.6%. In 1970 75.5% of the resident population was white; 19.1% Indian; 1.5% Aleut; 1.4% Eskimo, and 2.6% other (Filipino, Japanese, etc.).

The population of the community of Mt. Edgecumbe (recently connected to Sitka by bridge) is comprised of Federal Government employees and

Native students attending the Bureau of Indian Affairs high school from all over the state. Thus, it is a highly transient population and not particularly dependent on the economic stability of Sitka.

Sitka's economy relies extensively on the Alaska Lumber and Pulp Company's pulp mill (ALP) which has an average consumption of about 100 million board feet of timber per year. It provides about one-third of the city's total employment with approximately 1,125 of the community's total 1975 employment of 3,650 persons related to ALP. In the same year, the mill provided a \$14,877,000 industry payroll to the total community payroll of \$48,267,000.

The second major economic base in Sitka is government which is the leader in year-round employment. In addition, Sitka is now experiencing approximately 50,000 visitors annually, 20,000 from tour ships. This produces a local income between one and two million. The fish-processing industry in the Sitka/Pelican area has an average wholesale value of \$7.3 million from buyers all along the U.S. west coast. There are 204 business places, including the Alaska Lumber and Pulp Company.

Outdoor recreation is basic to the lifestyle in Sitka with a sizeable fleet of recreation boats and privately-owned airplanes. A conservative community, Sitka is not a strongly issue-oriented community. However, a portion of the population possesses a strong environmental ethic and interest in development of the Forest Service West Chichagof/Yakobi land use study was high, from both conservation and industry-oriented interest groups.

PELICAN is a small village located on Chichagof Island inside LISianski Inlet and facing one boundary of the proposed wilderness area across the narrow inlet. Accessible only by float plane or boat, the population in 1975 was 183, an increase of 70 persons in the period 1970-75.

Pelican's economy is based on a fish processing plant. Employment levels in the past ten years have peaked in the summer at as much as four times the off-season level with a marked annual increase in the past few years as a result of increased activity by Pelican Cold Storage (The periods 1971-74 and 1965-68 revealed a 55% increase.) Some business activity has been generated by Inspiration Development Company in 1974-75, at Bohemia Basin on nearby Yakobi Island.

ELFIN COVE, a few miles north of the proposed wilderness area, is a small fishing village with a population in 1975 of 183 persons. This represents an increase from 1970 of 70 persons. Fishermen from this village are effected by temporary increases of traffic or of activity in boat anchorages or bays.

OTHER COMMUNITIES: Tenakee Springs, on east Chichagof, and Hoonah, located on northeast Chichagof facing Icy Straits, have a less direct interest in management of West Chichagof/Yakobi. Fishermen from Hoonah are effected by temporary increases of traffic and by activity in boat anchorages or bays. In addition, a shift in the location of the timber harvest program from West Chichagof to other areas may result in more harvest activity impacting Hoonah and Tenakee. Finally, all of the relatively isolated villages will be effected by any altered economic patterns in southeast Alaska, particularly in the larger communities where they seek many goods and services (large grocery orders, parts and equipment, medical services, higher education, etc.).

C. VCU's INCLUDED.

253-286 inclusive, plus parts of 249

II. CHARACTER OF THE AREA.

A. PHYSIOGRAPHIC REGION.

West Chichagof is joined with Admiralty Island as the Admiralty-Chichagof Physiographic Region.

B. BRIEF DESCRIPTION

1. PHYSIOGRAPHIC FEATURES:

West Chichagof/Yakobi Islands are within the Alexander Archipelago, a long string of islands extending from Dixon Entrance to the Canadian border north of Lynn Canal.

The West Chichagof/Yakobi proposed wilderness area supports, in relative abundance, nearly all major land types and associated ecosystems characteristic of southeast Alaska and some of which are uncommon to the Region as a whole. Most dramatic is the 65 mile long stretch of rugged Pacific coastline extending from Salisbury Sound to Cape Bingham and characterized by exposed offshore islands and rugged, blocky highlands. Behind the stout headlands, barrier islands, rocks, and reefs of the outer coast lie the quiet waters of the inside passage, honeycombed with bays, inlets and lagoons. Rising abruptly from the ocean is the mountainous backbone of the area, a satellite of the great coast range batholith. Peaks rise to 3,600 feet, often from water's edge. The eastern slope of the unit, particularly the Hoonah Sound area, is typical of the landscape that dominates the extreme inner core of the Alexander Archipelago.

Continental and alpine glaciation has played the major role in shaping the mountainous coastal zone which is characterized by drowned glacial valleys (fiords), aretes, cirques, and lakes. Most of the northern landforms have been heavily ice scoured, leaving only a thin mantle of glacial till plastered to upland slopes. Vast lowland areas have been scoured to bedrock. Notable groupings of wave-cut erosional features are found along the coast.

2. ECOLOGICAL FEATURES

The maritime climate of West Chichagof/Yakobi is typically cool and moist with relatively narrow temperature variations associated in part with the moderating influence of the Gulf of Alaska. Mean yearly temperatures average 45 degrees, accompanied by a high percentage of overcast days (+75%), frequent rain showers, and occasional periods of strong winds (30-100 miles per hour). Data indicates that the western coast experiences slightly warmer and wetter average weather than Sitka to the southeast.

With the exception of the deeper soil mantled watersheds of Peril Strait and Hoonah Sound, both West Chichagof and Yakobi Islands were heavily scoured by ice during the Pleistocene Period. This area was covered by volcanic ash from Mt. Edgecumbe eruptions approximately 9,000 years ago. While these soils are productive, they are susceptible to mass wasting; drainage is often poor and muskegs and alpine bogs predominate. Vegetation appears to be dominantly that of coniferous tree cover with only 31% of the area capable of supporting commercial timber. Another 50% is in muskeg or scrub. The alpine ecosystems occupy 28%, while estuarine areas represent only 1%.

Western hemlock and Sitka spruce are the most important commercial species. Some Alaska cedar attains commercial size but generally grows in scatterings on the less productive sites. Lodge-pole pine is also restricted to poor sites and rarely attains commercial size. Portions of the outer coast, particularly the offshore islands, support distinctive savanna glades under open spruce cover.

Understory vegetation is primarily that of salmon berry, blueberry, huckleberry, rusty menziesia, and devil's club, often forming dense thickets under the open forest canopy.

Fisheries is one of the most important wildlife resources of the area. Four species of salmon are found in the lakes and streams and a total of 144 streams are viewed as potential fish producers. Nineteen of the 98 known producers are considered excellent. While most streams are short and originate in relatively small watersheds, the larger

systems include Black River, Surge Lake, Lisianski River, Patterson River, Ushk and Deep Bays and Fick Cove. All but two of these are on the more productive timber sites in the eastern side of the area. Streams and lakes rated excellent for trout include Waterfall Cove, Klag Bay, Goulding, Black River, Takanis Lake, Surge Lake, Suloia Lake, and Hoctaheen Lake. The Upper Steelhead River is known for good Dolly Varden fishing and the Black and Takanis Rivers for steelhead trout.

Estuarine and offshore ocean waters sampled by the National Marine Fisheries Service appear less productive than waters farther south along the coast. However, outside waters from Klag Bay to the Myriad Islands show reasonably good productivity of small abalone and red snapper, ling cod, sculpin and greenling.

The area supports a wide variety of wildlife with hunting considered good to excellent and comparable with that on Baranof and Admiralty Islands. Big game species include Sitka black tail deer and brown bear; fur bearers are abundant. The area is most remarkable for its migrant water fowl and for its populations of sea mammals. Bald Eagle are found in Hoonah Sound but are relatively scarce elsewhere except during salmon runs.

3. LANDTYPE BREAKDOWN:

	<u>No. Acres</u>	<u>% VCU</u>
Census Freshwater	5,517	1.39
Noncensus Freshwater	4,070	1.02
Estuarine	3,979	1.00
Muskeg	51,551	12.98
Alluvial	4,432	1.12
Valley Bottom Lowlands	51,732	13.03
Glacial Valley Walls	163,425	41.15
Alpine	112,417	28.31

III. LAND OWNERSHIP

While specific H.R. 39 boundaries are not yet available, approximate boundaries indicate that in some cases VCU's are split.

A. ACRES BY OWNERSHIP

<u>TOTAL N.F.</u> <u>LAND</u> <u>ACRES</u>	<u>CENSUSED FRESH</u> <u>WATER BODIES</u> <u>> 40 ACRES</u>	<u>OTHER</u> <u>WATER</u> <u>< 40</u> <u>ACRES</u>	<u>PRIVATE</u> <u>LAND</u>	<u>TOTAL ACRES</u> <u>WITHIN</u> <u>BOUNDARY</u>
416,615	7,679	1,877	731.2	426,902

B. DIFFERENCE IN ACRES IN BILL AND ACRES BY VCU.

(Approximate) - 21,902 In the Bill - 405,000 acres

IV. MANAGEMENT AND USE.

A. EXISTING USES.

There are nine current special-use permits. Two are residence permits at Green Top Harbor on Yakobi Island, in effect since 1951. There are four cabin permits issued to private individuals and an ADF&G observatory permit. ALP has log storage permits at Ushk and Poison Cove. In addition, there are heavily used Forest Service recreation cabins at Goulding Lake and White Sulphur Springs. A third Forest Service cabin is located at Suloia Lake. There are several Coast Guard navigational beacons on the islands.

At present, the major income producing activities on West Chichagof/Yakobi are recreation, tour boats and guiding, offshore fishing, hunting, and mineral exploration. Recreation expenditures appear to be approximately \$90,000 annually. One mining company has spent over \$1,500,000 primarily in the period 1972-75.

Existing roads in a "storage" category occur along the east side of this area as a result of timber sale activity in the 1950's and 60's. They are found in VCU 285, 283, 282, 281 and 279.

Scattered throughout the area are evidences of past uses; among these ruins are old mining town and various mining sites, cabins, and abandoned fur farms.

B. MANAGEMENT COMMITMENTS.

West Chichagof/Yakobi is a part of the long-term Sitka Unit Alaska Lumber and Pulp Timber Sale. Within the area there is a timber volume of 1.33 billion board feet (1970 Forest survey). This represents the entire commercial forest base that occupies lands with 8,000 or more board feet per acre. Under the sale, the area could contribute an equivalent of 3.91 million board feet to the annual allowable harvest of the standard and special components.

The primary ALP timber supply stems from an administrative unit called the Chatham Area. It is further subdivided in the timber management plan as:

Sitka Working Circle -- Chichagof and Baranof Islands
Yakutat Working Circle -- Yakutat
Juneau Working Circle -- the remainder

The ALP long-term sale includes the Sitka Working Circle (within which West Chichagof and Yakobi Islands lie) and Kuiu Island, which lies within the Stikine Area. It should be noted that when the West Chichagof/Yakobi wilderness study was proposed, timber operations were moved to the Kuiu contingency area which has not been logged since 1973. At the time the West Chichagof environmental impact statement was completed, the Forest Service indicated that "sufficient volume exists to meet the ALP long-term commitment, particularly considering that the Kuiu Island Contingency area is no longer available, impact on the timber harvest by reservations on West Chichagof/Yakobi is a more crucial issue.

C. USE PROPOSALS.

1. The USDA report of June 10, 1977 on H.R. 3454 recommended Wilderness Study designation of West Chichagof/Yakobi to be followed by a 5-year study of energy, timber, and recreation values. The area was deleted in the bill markup.
2. Proposals for fisheries enhancement include proposed fish passages at Goulding Lakes, Flat Cove, and in the Goon Dip river system. In addition, the National Marine Fisheries Service has identified suitable sites for fish hatcheries with a capability to handle 40-60 million eggs per year. These are: Suloia, Didrickson, and Goulding Lakes, Lake Elfendahl, Surge Lake and Lake Leo. Other regional aquaculture organizations are now preparing recommendations which may involve West Chichagof/Yakobi.
3. Seven locations have been proposed as potential water power projects. They are:

POTENTIAL WATER POWER PROJECTS OF WEST CHICHAGOF/YAKOBI ISLANDS*

PROJECT NUMBER	LOCATION	CAPACITY IN HORSEPOWER	
		PRIMARY	AVERAGE
176	Rust Lake	3900	4000
177	Didrickson Lake	1300	1800
178	Goulding Lakes	5100	5600
179	Falls Creek	800	850
180	Porcupine Creek	5200	5200
181	Cann Creek	1000	2000
190	Suloia Lake	1800	1900
		19100	21350

* Federal Power Commission

1947 Water Powers, Southeast Alaska; Federal Power Commission and U.S. Forest Service; F.P.C. p.g. illus.

4. Possible corridors for future land access can be found in 262, 284, 272, 274, 275, 277, 278 and 280. Most of these proposed access road corridors average from 4 to 10 miles of length and run from saltwater to dead end termini in timbered valleys. An inter-connected road system is not planned. Yakobi Island can be accessed from saltwater by way of short dead end corridors in VCU 254, 253, 257, 258 and 255.

D. LAND SELECTIONS.

Except for 1,204 acres of private land located on Radio Island, Doolth Mountain, and Poison Cove, the West Chichagof/Yakobi area is Tongass National Forest land. Three land claims, totalling 480 acres, have been filed under authority of the Native Claims and Allotment Act of 1906 as amended; two are located at Fick Cove and one on Yakobi Island.

The Alaska Native Claims Settlement Act provides for the conveyance of 23,400 acres within a 50 mile radius of Sitka to the Shee Atika Corporation. Part of West Chichagof is within this radius. Shee Atika's final selections have not been made.

The Sealaska Corporation has identified for selection 96 sites scattered throughout southeast Alaska, encompassing approximately 2,000 acres. Five sites, totalling 33.5 acres, have been selected on West Chichagof (4) and Yakobi (1). Eight additional sites may warrant selection: six on West Chichagof and two on Yakobi. Selected as of December 1975 were:

Khaz Peninsula Village (WC)	Village on the Gate (WC)
Klag Bay Village (WC)	Surge Bay (YAKOBI)
Ogden Passage Village (WC)	

V. SUMMARY OF RELEVANT RESOURCE INFORMATION.

A. RECREATION.

1. FOCUS OF PRESENT USES.

For the most part recreational use of West Chichagof and Yakobi Islands is confined to protected west coast passages and to some extent the quiet waters of Lisianski Inlet, Lisianski Strait and Hoonah Sound. The outer coast of Yakobi Island receives relatively light use due primarily to its exposed access open to unpredictable weather extremes. The interior highlands are beginning, however, to receive increased use by hikers ranging inland from the myriad of protected anchorages that dot the perimeter of both West Chichagof and Yakobi. Key recreational use areas oriented toward beachcombing, scuba diving, hiking, exploring, sport crabbing, boating, kayaking, and hunting are concentrated along

the east and west coasts of West Chichagof with only minor recreational endeavors reaching north to Yakobi Island.

2. RECREATION FACILITIES.

On both West Chichagof and Yakobi Islands recreation facilities are scant. Several guide cabins in the Klag Bay area support significant hunter use in the spring and fall. White Sulphur Springs and attendant Forest Service bathhouse and cabin in Islas Bay receive intensive use by recreationists originating throughout the northern half of the Tongass. Aside from these facilities, little more in terms of recreation facilities exists. Most recreationists are content to use small craft as "home base," occasionally supplemented by tent camps.

3. UNIQUE ATTRACTION FEATURES.

West Chichagof and Yakobi Islands in combination supports in abundance every major ecosystem found within the northern coastal rainforest with the exception of the predominantly ice and snow clad coast range regimes. Major attractions to recreationists include thousands of storm battered islands, reefs and promontories, intricate bays, coves, lagoons, and passages, quiet tidal meadows and estuaries, prime examples of old growth rainforests, windswept stunted, often contorted, scrub forests and notable populations of sea otter, sea lion and seals. Brown bear are common and often encountered in the high country during the summer months. Deer are prolific at times and hunter success on the western coast of both West Chichagof/Yakobi is excellent. The mountainous backbone of West Chichagof provides numerous opportunities for sustained hikes through relatively unbroken alpine settings, a somewhat uncommon occurrence in southeast Alaska which is frequently characterized by broken, rugged terrain.

4. WILDERNESS QUALITY RATINGS.

VCU 249-
VCU 253-3
VCU 254-5
VCU 255-5
VCU 256-2
VCU 257-2
VCU 258-3
VCU 259-4
VCU 260-3
VCU 261-3
VCU 262-4
VCU 263-3
VCU 264-4
VCU 265-4

VCU 266-3
 VCU 267-3
 VCU 268-4
 VCU 269-4
 VCU 270-5
 VCU 271-4
 VCU 272-4
 VCU 273-2
 VCU 274-4
 VCU 275-3
 VCU 276-2
 VCU 277-3
 VCU 278-4
 VCU 279-3
 VCU 280-3
 VCU 281-4
 VCU 282-3
 VCU 283-4
 VCU 284-4
 VCU 285-4
 VCU 286-2

B. TIMBER

VCU 253-286

1. Timber Land Classification

	<u>No. Acres</u>	<u>% VCU</u>
CFL	124,626	31.38
Non-CFL	146,061	36.78
Non-Forest	126,435	31.84

2. Volume Class

(Bd/Ft/Acre)	<u>No. Acres</u>	<u>% CFL</u>
Under 8,000	2,532	2.03
8,000-20,000	74,251	59.58
20,000-30,000	33,734	27.07
30,000-50,000	13,656	10.96
Over 50,000	452	.36

3. Site index

	<u>No. Acres</u>	<u>% VCU</u>
Low (55-85)	55,259	44.34
Med. (85-115)	51,279	41.15
High (115-150)	18,088	14.51

4. Harvest Operability

	<u>No. Acres</u>	<u>% VCU</u>
Normal	72,352	58.06
Non-Standard	23,062	18.51
Inoperable	29,212	23.44

C. WILDLIFE.

West Chichagof/Yakobi supports excellent populations of brown bear, deer, and fur bearers. Highest deer densities are found along the entire west coast and in drainages from Deep Bay north to the head of Hoonah Sound. Black River, Ford Arm, Falcon Arm and most of the stream mouths to Peril Strait support high densities of bear. Fur bearers are abundant throughout most of the area and include marten, mink, weasel, land otter, red squirrel, flying squirrel, and beaver.

The area is remarkable for its use by migrant water fowl. Thousands of ducks, geese, swans, and shore birds seek this area for feeding and resting during migration periods. The Vancouver Canada goose, a resident species, is known to nest here. Peregrine falcon have been reported. Bald eagle are found on West Chichagof/Yakobi, common in Hoonah Sound but relatively scarce elsewhere except during salmon runs.

West Chichagof/Yakobi is also known for its populations of marine mammals. The Fish and Wildlife Service has successfully re-established sea otter at Surge and Khaz Bays where the greatest concentrations in the Chatham Area are now located. There are outstanding sea lion rookeries found at White Sisters Islands, Cape Cross, and Cape Bingham. Seal inhabit most of the coastline.

D. FISH.

West Chichagof/Yakobi is rated for coho, chum, pink, cutthroat, Dolly Varden, rainbow/steelhead. Population of salmon is estimated 5,000,000, second only to Admiralty Island in total escapement. Trout and char escapement is estimated at 170,000, highest of all Chatham areas included in H.R. 39.

The most notable shellfish and marine fish species in southeast Alaska are Dungeness, Tanner, and King Crab, shrimp, herring, smelt, and halibut. Many other non-game species of marine fish and shellfish occur in the estuaries that have significant consumptive or non-consumptive uses.

Sport, commercial and estuarine fishery values were rated by considering number of species, abundance, habitat conditions, sport and commercial fisheries, and several other special values which are associated with certain watersheds. The following table displays the overall ratings for sport, commercial, and estuarine values for each VCU included in the West Chichagof/Yakobi wilderness proposal:

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
249			
253	low	low	low
254	high	high	high
255	med	high	high
256	low	low	---
257	med	med	---
258	low	low	---
259	med	high	---
260	low	low	low
261	high	high	---
262	med	high	---
263	high	med	---
264	high	high	---
265	high	high	med
266	med	high	---
267	low	low	---
268	med	high	---
269	low	low	low
270	high	high	low
271	high	high	---
272	high	high	---
273	high	high	---
274	high	high	---
275	med	high	low
276	med	high	---
277	med	high	---
278	high	high	low
279	med	high	---
280	high	high	---
281	high	high	med
282	med	high	med
283	med	high	med
284	high	high	med
285	low	low	med

E. MINERALS

A belt trending north northwest through the western portion of Chichagof Island has produced nearly a million ounces of gold, as well as some silver. Production was primarily from the Hirst-Chichagof Mine and the Chichagof Mine, although small amounts of gold were recovered from other mines, primarily the Apex, El Nido, Alaska Chichagof, and Cobol Mines. There is no recorded production from any mines in the district since about 1945.

A large body of norite and concentrated sulfides (nickel-copper bearing) exist on Yakobi Island. The major deposits are on the east side of the island at Bohemia Basin, but some deposits of uncertain size are on the west side of the island. In addition, several deposits of norite also occur near Mirror Harbor on the west coast of Chichagof Island.

Value Comparison Units 253 through 286 lie within a geologically highly favorable region for metallic and related nonmetallic deposits. These areas are broad regions containing widely scattered mineral occurrences, proven by exploration and indicated by geologic criteria.

Value Comparison Unit 254, from Cape Bingham to Cape Cross, has a portion of a large block of lode mineral claims, totalling 331. They are located in the south half of VCU 254 at Latitude $57^{\circ} 57'$, Longitude $136^{\circ} 52'$ on the mid portion of Yakobi Island. Gold, silver, lead, zinc, copper and nickel have been reported. These claims were filed on in 1972 and are very active at present. Patent has been filed for on these claims.

Value Comparison Unit 255, Cape Cross to Porcupine Island, has scattered mineral claims, but none have been active in the last four years.

Value Comparison Unit 257, including Bohemia Basin, has 264+ mineral claims, involving 5280 acres, but there is no recorded activity in the past four years.

Value Comparison Unit 258, bordering Lisianski Strait, has 23 mineral claims, involving 460 acres. Two of the 23 have been active since 1973 to present. The location is on Lisianski Inlet at Latitude $58^{\circ} 02'$, Longitude $138^{\circ} 29'$.

Value Comparison Unit 259 has one patented claim, mineral reported as gold, last recorded workings 1957. It is located on Lisianski Strait, Latitude $57^{\circ} 39'$, Longitude $136^{\circ} 05'$.

Value Comparison Unit 260, bordering Lisianski Inlet, has 77 mineral claims; 69 of the 77 are active at present. All claims are lode and report gold, silver, lead and zinc. All of the mineral claims are found in the north half of VCU 260.

Value Comparison Unit 263, including Goulding Lakes, has 12 mineral claims with no mineral listed. Location is on the northern most portion of VCU 263, at Latitude $57^{\circ} 52'$, Longitude $136^{\circ} 11'$. Claims were filed in 1974 and are active at present.

Value Comparison Unit 265 has 74 mineral lode and placer claims; 13 of the 74 are active to date, (3/1/77). Claims are scattered throughout VCU 265, west of Goulding Lakes.

Value Comparison Unit 268 has a portion of a large block of currently active lode mineral claims, totalling 365. They consume the south half of VCU 268 north of Cape Dearborn.

Value Comparison Unit 271 has 309 mineral claims, involving 6,180 acres + 46 of the 309 claims are patented, involving 920 acres +. A low percentage of the 309 mineral claims have recorded activity. The claims are concentrated in the north half of VCU 271 near Khaz Bay.

Value Comparison Unit 274 has a large block of 76 lode mineral claims in the northeast quarter. Location is Latitude $57^{\circ} 35'$, Longitude $135^{\circ} 51'$. Minerals claimed are not listed. These claims were filed in 1974 and are active at present. Two other claims are located in the southwest quarter of VCU 274. One claim a lode, the other a placer; both are active at present. These involve 1,540 + acres.

Value Comparison Unit 275 on Slocum Arm, has a group of 5 lode claims. Located in the south half of VCU 275 at Latitude $57^{\circ} 30'$, Longitude $135^{\circ} 52'$. These are gold claims filed in 1953 and active at present.

Value Comparison Unit 278 has a group of 11 lode claims, involving 220+ acres. They are located in the northern portion of VCU 278, north of Suloia Bay. These molybdenum claims were filed in 1967 and are active at present. The location is Latitude $57^{\circ} 28'$, Longitude $135^{\circ} 46'$.

Value Comparison Unit 281, Ushk Bay, has 60 lode mineral claims which involve 1200+ acres. They are located in the southwest quarter of VCU 281 at Latitude $57^{\circ} 31'$, Longitude $135^{\circ} 46'$. The mineral claimed is not listed. Claims were filed in 1974 with no recorded activity in 1976 or 1977.

The remainder of the Value Comparison Units on West Chichagof and Yakobi Islands either are lacking exploration or the work completed has not provided sufficient mineral evidence to hold interest for further exploration.

F. CULTURAL

There are 35 archeological sites identified in the West Chichagof/Yakobi area. Intensive future study can be expected to reveal many additional sites.

VCU	# OF SITES	SITE #	DESCRIPTION
254	5	XMF-054	village site
		XMF-055	camp
		XMF-056	possible old village and non-native early use
		XMF-057	radio beacon 1920 - marine navigation
		Sit-100	use area
255	2	Sit-101	village
		Sit-102	petroglyph
259	2		cannery and miners camp
			1919, cabin
260	2	Sit-020	
		Sit-117	El Nido Mine, mine and post stop
270	2	Sit-115(155)	garden site
		Sit-154(812)	village
271	8	Sit-107	camp, village
		Sit-021	village, post office, gold camp
		Sit-108(829)	village
		Sit-106(858)	village and petroglyph
		Sit-151(159)	village
		Sit-109(957)	cemetery
		Sit-156(856)	village
		Sit-110	powerhouse for mine
272	1	Sit-105	possible village
274	4	Sit-112(850)	camp and village
		Sit-111	cannery
		Sit-113	Shaman grave
		Sit-114	possible village
275	2	Sit-018	mine(?) camp
		Sit-116	Cobol mine and post office
278	1	Sit-7	box factory
280	1	Sit-035(181)	Indian cabins, petroglyphs
282	1	Sit-098(185)	village
284	2	Sit-150(187)	village
		Sit-146(188)	burial site
264	1	Sit-104	harbor 1787, captain anchored
265	1	Sit-103	mine

Goulding River and Lakes (113-81-003)

This system is located in the ^{Chatham}~~Sitka~~ Forest Service District on West Chichigof Island draining into Goulding Harbor (map reference Sitka, D-7). The system consists of four lakes: #1, #2, #3 - ^{Otter}~~Otter~~ Lake, and #4 - Goulding Lake; and the interconnecting streams. Goulding River is the stream draining from Lake #1 into Goulding Harbor. There is a falls at the outlet of Lake #1 which is a barrier to the passage of anadromous fish, and another series of falls between Lakes #1 and #2 which are also barriers to fish passage. Periodically several thousand pink and/or chum salmon spawn below the lower falls.

All four lakes have excellent populations of cutthroat and Dolly Varden trout. Apparently these populations are the result of stocking by U.S. Forest Service personnel in the 1940's but specific information is unavailable.

There is one Forest Service cabin at Otter Lake which received 400 visitor days of use in 1975. Excellent sport fishing opportunities, deer hunting, camping, a potential canoe system, and the scenic beauty of the area indicate increasing recreational use in the years to come.

YAKUTAT

I. LOCATION.A. CHATHAM AREA, TONGASS NATIONAL FOREST, REGION 10, ALASKA.

This wilderness proposal encompasses lands that lie along the Gulf of Alaska between the Fairweather Range of the Saint Elias Mountains to the northeast and the Malaspina Glacier, across Yakutat Bay, to the northwest. Yakutat Bay borders the proposed wilderness on the west; the Brabazon Range lies to the north. The Alsek River and Deception Hills are east of the proposal. A line westward from the Alsek through the Brabazon Range to Harlequin Lake and northward across Nunatak Fiord forms the boundary on the north. Disenchantment and Yakutat Bays constitute the boundary on the west. The Gulf of Alaska lies to the south from Ocean Cape to the Doame River, a distance of 63 miles. The longest north-south distance in the proposal is approximately 50.4 miles. This distance extends from a point near the Akwe River to the proposed wilderness border north of Nunatak Fiord.

B. RELATIONSHIP TO COMMUNITIES.

Adjacent to the proposed wilderness is the community of Yakutat. The 1975 population of Yakutat was reported by the state at 455 persons, a significant increase from the 1970 census of 190. In the 1970 census, 82.1% of the population was reported as Native (Tlingit, Haida, or Tsimshian).

Located on Monti Bay, just inside the entrance to Yakutat Bay, Yakutat depends upon fishing as its major source of economic strength. Salmon is the primary commercial species although there is some potential for expansion of the tanner crab fishery in the waters between Yakutat Bay and Cape Spencer.

Tourism and recreation industry, although undeveloped, contribute to the local economy through use of guide services, air charter, and lodge facilities, as well as purchase of incidental goods and services. The wood products industry is presently at a low level in Yakutat although it has the potential to become a major source of income and employment in the future, contingent upon economic direction taken by the village corporation, the Yak-Tat-Kwaan, which has selection rights to 23,040 acres.

Socio-economic impacts of recent offshore drilling has been minimal with the 60 to 100 oil industry workers who are primarily from the lower 48 and work 2-4 weeks on, with 2-4 weeks off. They spend their off time back home. They are primarily housed on the offshore platforms or in several locations outside of town. There are only a handful of local people permanently employed in the oil related industry in

Yakutat. These arrangements, which have effectively insulated the community from a "boom growth" experience, are the result of deliberate efforts on the part of the Yak-Tat-Kwaan and the City Government to protect local lifestyle.

Access to Yakutat is confined to air travel. Its airfield, constructed during World War II, is presently served by Alaska Airlines and private charter companies.

C. VCU's INCLUDED.

VCU's - 356-360, 362-365,
374-391 and 393 inclusive;
plus parts of 352, 353, 354,
355, 361, 366, 373, 394,
and 395.

II. CHARACTER OF AREA.

A. PHYSIOGRAPHIC REGION:

The Yakutat wilderness proposal encompasses two physiographic regions, the Forelands of the Cordova-Yakutat Physiographic Region and Russell Fiord within the Coast Range Physiographic Region.

B. BRIEF DESCRIPTION

1. PHYSIOGRAPHIC FEATURES:

Yakutat Bay is part of a deep fiord that extends inland from the Pacific Ocean for several miles towards the southwestern slopes of the St. Elias Range. It offers the only port and anchorage facilities for deep draft vessels between Sitka and Valdez. Mount St. Elias, barely 40 miles northwest of Yakutat Bay, rises on the horizon to a height of 18,008 feet from a low narrow coastal plain.

On the southeast side of the bay, and running along the coast for approximately 65 miles, is a flat foreland which extends outward from the base of the mountains for a maximum width of about 16 miles. Southeast of Harlequin Lake, the lowland narrows to a width of about four miles, then again widens to include the Alsek River flood-plains before it is cut off by the Deception Hills.

The coastal plain building is attributed in part to the movement of material from the steep mountains in the background through glacial and stream action. Vast amounts of unconsolidated material have been swept down from the mountains to form alluvial deposits and extensive gravel flood plains. Materials along the beach have been reworked by wave action to separate sand from the larger rock aggregate components. During low tides, prevailing offshore winds have blown the sand inland to form dunes. The dunes and ocean-built sand bars partly block the rivers

and streams to form shallow lakes and lagoons usually paralleling the beach. These lowlands, in turn, become filled with silt and other river debris to continue the land-building process.

Another factor in the building of the coastal plain is the gradual emergence of the land mass from the ocean. Frequent earthquakes and accompanying fault action indicate that the mountain-building movement is continuing along the St. Elias Range and in the Yakutat area. This is evidenced by remnants of many old wave-cut beach terraces at progressively higher elevations. These terraces parallel the present coastline and are prominently marked by green bands of trees separated by low-lying wet areas.

Dry Bay, along the southeast side of the proposal, furnished the only other protected anchorage. The entrance to it, however, is hazardous and will only permit the passage and anchorage of small fishing boats. Russell Fiord exhibits unusual scenic beauty and is high in scientific interest for its record of catastrophic geological events.

The Yakutat region is considered one of the most active seismic areas of the United States. One area near Yakutat shows uplift of 14.3 meters, the greatest uplift ever measured for an earthquake sequence. Earthquakes of magnitude 8.5-8.6 (Richter scale) have occurred, some of them caused by movement along fault lines.

2. ECOLOGICAL FEATURES

Major plant communities found in the proposed area are:

- | | |
|---------------------------------|--------------------------|
| 1. Sitka spruce/western hemlock | 6. Willow/alder/forb |
| 2. Sitka spruce/cottonwood | 7. Sphagnum/sedge |
| 3. Cottonwood/forb | 8. Beach pea/ryegrass |
| 4. Cottonwood/willow | 9. Sedge/rush/salt grass |
| 5. Cottonwood/alder | |

Open plant communities occur in the bogs and muskegs, along the beaches and large rivers, and in the delta and estuarine areas. Closed canopy timbered communities occur on the better drained, older soils.

Young growth saw timber and immature Sitka spruce stands predominate at Yakutat. About 75% of the old growth timber is located north of the Dangerous River. The hardwood type occupies almost four times the combined area of hardwoods found on all other working circles on the Tongass National Forest. Most of this type occurs along the Russell Fiord and in the broad delta region of the Alsek River.

Wildlife species are varied and in good abundance at Yakutat. Resident moose, brown bear, deer, black bear (including the blue color phase), goats, and wolves make up the big game species. In addition, excellent water fowl nesting and hunting grounds are found here. Bald eagle nest concentrations are found in the proposed wilderness area.

Fish species include all salmon, steelhead, and Dolly Varden, cutthroat and rainbow trout. Northern pike have been discovered in lakes on the Forelands, the only known natural populations west of the Coast Range.

3. LANDTYPE BREAKDOWN.

	No. Of Acres	% VCU
Censused Freshwater	12,594	2.1
Non-Censused Freshwater	3,010	0.5
Estuarine	10,456	1.7
Muskeg	77,151	12.8
Alluvial	14,416	2.4
Valley Bottom-Lowland	143,529	23.8
Glacial Valley Walls	44,437	7.4
Alpine	297,196	49.3

III. LAND OWNERSHIP.

H.R. 39 boundaries indicate that in some cases VCU's are split.

A. ACRES BY OWNERSHIP.

TOTAL N.F. LAND ACRES	CENSUSED FRESH WATER BODIES > 40 ACRES	OTHER WATER < 40 ACRES	PRIVATE LAND	TOTAL ACRES WITHIN BOUNDARY
602,792.2	4,827.5	704.5	272.3	608,596.5

B. DIFFERENCE IN ACRES IN BILL AND ACRES BY VCU: - 188,596.5

It should be noted that the above estimates do not include public lands presently managed by the Bureau of Land Management which are included in the H.R. 39 proposals. These acres increase the difference in acres estimated in the bill and acres calculated by VCU by approximately 55,030 acres. There are approximately 27,250 acres of BLM land in the Harlequin Lake area and 16,930 acres in the Nunatak Fiord area. In the Bill, 420,000 Acres.

IV. MANAGEMENT AND USE.

A. EXISTING USES.

The Yakutat area is unique to southeast Alaska. Its broad, flat foreland between the St. Elias Mountain Range and the Pacific Ocean supports wildlife and fish populations that are major commercial and recreation attractions. Yakutat has gained national recognition as a sportsman's paradise and only isolation and limited access keep the quality of this area from rapid deterioration through overuse. The recreation use and potential is tied closely to enjoyment of the wildlife, fisheries and scenic resources. There is such a wide and prominent range of these values that the potential of the area to provide a broad spectrum of recreation experience is probably greater than in any other area on the Tongass.

There are existing special-use permits in the proposal area, including fish camps, residences, and various temporary permits. There are eleven public recreation cabins in remote locations, including seven airstrips at the recreation cabin sites without water access. There are five moose browse exclosures for evaluating moose habitat.

Fish camp locations are at the mouths of the Situk, Italio, Akwe, Alsek. The commercial fisheries in the Alsek supports several camps and a fish processor.

Existing roads include State Highway #10, a high use road which runs the full length of VCU 373 and crosses 376, 375, 377, into VCU 378. A road system does exist and is currently being used by fishermen in the Dry Bay area. VCU's affected are 381 and 395.

B. MANAGEMENT COMMITMENTS.

There is a planned 10,000,000 board feet timber sale in the Forest Service five-year operating plan. The sale area is located north of Highway 10 and northwest of the Dangerous River. The sale area is about 500 acres.

C. USE PROPOSALS.

1. Due to the high water tables and many short run streams to the sea, it is economically possible to develop numerous aquaculture sites in this area. Regional aquaculture organizations are currently developing detailed proposals which may include sites in the Yakutat area.
2. The Forestry Sciences Laboratory has proposed a Pike Lake Research Natural Area.
3. Sites have been inventoried for potential recreation cabins.
4. The Yakutat Citizens Involvement Group, serving in an advisory capacity to provide the views of local town people in development of the Tongass Land Management Plan, has unanimously proposed a Russell Fiord Wilderness Area to exclude areas east of the Dangerous River.

D. LAND SELECTIONS - STATE AND NATIVE.

The primary townships for native selections in the Yakutat area are:

Township 27 S, Range 33 E, SEctions 1-36; Township 27 S, Range 34 E, Sections 1-36.

There have been over 25 applications for Indian allotments under the Indian Allotment Act of 1906 as amended.

The extent of State selection will depend on the land pattern created by settlement of the Alaska Native Claims Settlement Act. A 3,607 acre State selection has been made at the Yakutat Airport.

V. SUMMARY OF RELEVANT RESOURCE INFORMATION.

A. RECREATION.

1. PRESENT USES AND ACTIVITIES.

Present recreational uses within the Yakutat Forelands center around traditional hunting and fishing activities, often stemming from the many Forest Service cabins strategically located from the Situk River to the Alsek River. Forest Highway 10, which now crosses the Dangerous River at Harlequin Lake, has in the recent past supplemented these hunting and fishing pursuits with snow machine activities throughout the winter. Beachcombing from Ocean Cape to the Alsek River is a popular spring and summer activity.

Backcountry kayak trips throughout Russell and Nunatak Fiords and down the Alsek River from British Columbia are gaining rapid recognition as a key water-oriented activity, particularly in light of the vast and extremely dynamic settings which surround these Coast Range waters.

2. RECREATION FACILITIES.

Current recreation facilities are, in nearly all cases, centered around Forest Service Cabins situated to take advantage of outstanding hunting and fishing opportunities available throughout the Forelands. Several guide camps do sustain periods of activity during the spring and summer and early fall sport fishing season. The more remote areas of Yakutat, such as Russell Fiord and the foothills of the Brabazon Range, have no Forest Service recreation facilities.

3. UNIQUE ATTRACTION FEATURES.

From Disenchantment Bay to Dry Bay, is perhaps the most diverse, unique and dynamic region of the Tongass National Forest. Its youth, in an ecological sense, is testimony to continual change on a grand scale -- from the initial establishment of primitive life forms to established geomorphic, plant and animal regimes. Yakutat wildlife is diverse.

Extensive sand beaches and dune complexes extend nearly 25 unbroken miles from the Dangerous River to Dry Bay. Numerous and continually active glaciers dominate the Russell and Nunatak Fiords region. The Forelands, stretching from the Coast Range to the Gulf of Alaska support an unlimited array of plant communities in continual transition.

4. WILDERNESS QUALITY RATING.

VCU

352-3
353-3
354-2
355-3
356-4
357-3
358-2
359-3
360-3
361-3
362-3
363-5
364-3
365-4
366-5
373-3
374-4
375-4
376-4
377-4
378-4
379-4
380-5
381-5
382-5
383-2
384-3
385-4
386-3
387-4
388-3
389-5
390-3
391-4
393-4
394-4
395-5

B. TIMBER.

1.	Timber Land Classification	No. of Acres	%
	CFL	145,430	24.1
	Non-CFL	74,933	12.4
	Non-Forest	382,426	63.4
2.	Volume Estimate		
	Vos. Class (Bd.ft./acre)	No. Acres	%
	Under 8,000	29,783	20.48
	8-20,000	47,051	32.35
	20-30,000	31,526	21.68
	30-50,000	28,912	19.88
	Over 50,000	8,159	5.61
3.	Site Index	No. Acres	%
	Low (55-85)	52,437	36.1
	Med (85-115)	92,042	63.3
	High (115-150)	951	0.65
4.	Harvest Operability	No. Acres	%
	Normal	120,082	82.6
	Non-Standard	4,594	3.7
	Inoperable	20,753	14.3

C. WILDLIFE.

The Yakutat proposal area is superlative for its habitat diversity which results in the presence both of wide species variety and of high concentrations of wildlife. Large populations of brown bear, black bear (including the blue color phase), goat, wolf, and fur bearers are found in the area. Although some blue color phase black bear are found elsewhere in the Tongass, Yakutat supports the major population. Among the fur-bearing species are marten, mink, beaver, weasel, wolverine, coyote, lynx, and snowshoe hare.

Moose populations, low in recent years, are being restored through a combination of factors: a closed moose season since 1974, recent mild winters, and limited predator control. Range and habitat are such that the moose population is expected to reach former levels within the next few years.

The area supports hair seal and sea lion at the mouths of the major rivers and in Russell Fiord. Shore bird variety and numbers are extremely high during migration periods and swans nest at various locations. There is also a very high concentration of nesting song birds.

D. FISH.

Sport, commercial, and estuarine fishery values have been rated by considering number of species, abundance, habitat condition, sport and commercial fisheries, and several other special values which are associated with certain watersheds. Following are shown the overall ratings for sport, commercial, and estuarine values for each VCU in the Yakutat proposal area:

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
352	low	low	med
353	low	low	low
354	low	low	---
355	low	low	---
356	low	low	med
357	low	low	med
358	low	low	med
359	low	low	high
360	low	low	high
361	low	low	med
362	high	high	---
363	high	high	high
364	high	high	---
365	high	high	med
366	high	high	high

VCU	CATEGORY		
	SPORT FISH	COMMERCIAL FISH	ESTUARINE
373	high	high	---
374	high	high	---
375	high	high	---
376	high	high	---
377	high	high	---
378	high	high	---
379	high	high	high
380	high	high	high
381	med	high	---
382	high	high	---
383	low	high	---
384	low	high	---
385	med	high	---
386	low	low	---
387	low	low	---
388	low	low	---
389	low	low	---
390	low	low	---
391	low	low	---
393	low	low	---
394	low	low	---
395	high	high	high

E. MINERALS.

VCU's 352 through 366, 373 through 391, 393 through 395 all lie in regions classed as geologically unfavorable for metallic and related nonmetallic deposits except for deposits in sedimentary basins, including uranium.

VCU's 361, 362, 363, 364, 365, 373, 374, 375, 376, 377, 378, 379, 380, 381, 383, 383, 386, 387, 388, 389, and 395, have petroleum leases by one or more oil companies or interest groups. To date no economically feasible petroleum reserves have been found.

For VCU's 352 through 366, 373 through 391, and 393 through 395 analysis of samples discloses numerous small anomalous concentrations of many metals; none, however, appear to have any immediate economic significance. The most promising potential source for several metals is probably the sands of the present beaches and the elevated beach terraces on the Yakutat Forelands: additional exploration is required for their economic evaluation.

F. CULTURAL.

Except for the Eyaks of the Copper River Delta area, the Yakutat Tlingits are the northernmost extension of the Northwest Coast Indian culture. However, the origin of the Yakutat people has been complicated by

ancestry in Eyak tradition, an early residence of the Chugach Eskimo, and the later arrival of the Bremner River people. Therefore, what might have appeared to be a typical Tlingit village to the first Europeans visiting Yakutat in the late 18th century was already a complex, distinct, and rich culture.

The Yakutat area was studied by anthropologist Frederica Delaguna in the late 1950's with many sites of early use described by those whom she interviewed. However, the archeologist faces in Yakutat, as elsewhere in southeast Alaska, the dual problems of inaccessibility and heavy vegetation which obscures the visual indicators of early use sites. Further, the Yakutat area lacks the detailed and specialized investigation necessary to determine prehistoric sites which, based on migration theories, may well exist in the area. At least three probable prehistoric sites are now identified in the proposal area.

There are approximately 28 known sites used by early man in the Yakutat area. Included are villages and charcoal pits, a canal believed constructed by early native slave labor, cemeteries and a Tlingit fort. Sites of interest to historians of early white use include a Russian village site, Russian tablets, sealing camps, early houses and a railroad spur, and various gun emplacements and fortifications stemming from World War II.

Other Areas of Recreational Interest

JUNEAU, KATE'S NEEDLE, and YAKUTAT ICEFIELDS

These three units, lying between the National Forest and Canadian boundary, are primarily ice, high mountains, and devoid of vegetation.

A small amount of big game range occurs near the fringe of the Yakutat addition and is used to a limited extent by moose, bear and mountain goat. Some recreational hiking takes place adjacent to Harlequin Lake in this unit.

A glaciological research effort involving several universities is centered around the Juneau Icefield.

No management problems now exist with the proposed additions.

Pavlof Harbor System (112-50-030)

This system is located in the Chatham Forest Service District on Chichagof Island, Freshwater Bay (map reference Sitka, D-4) and includes the Pavlof River system draining into Pavlof Lake which in turn drains into Pavlof Harbor.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout and Dolly Varden ~~trout~~ are present in certain portions of the system.

Silver salmon and red salmon are fairly abundant with important spawning and rearing areas throughout the main river and tributaries above the lake. Pink salmon are periodically abundant in the lower portions of the system with some use by chum salmon. Healthy populations of cutthroat trout and Dolly Varden ~~trout~~ are established in the lake and also use the upper portions of the system as rearing habitat.

There are no Forest Service cabins in the vicinity, but the system offers excellent opportunities for sport fishing, deer hunting, camping, hiking, and canoeing. The high productivity and scenic beauty of the area are likely to be affected by the current and future logging activities throughout the area.

The early coho run in Pavlof is one of two north of P. of Wales island and should be protected for its biological value. This is also the only fishable early run stream in northern Southeast.

Sarkar Lake System (~~103-00-374~~)[?]

This lake and stream system is located in the Ketchikan Forest Service District on the northwest side of Prince of Wales Island and includes several lakes and interconnecting streams and tributaries (map reference Craig D-4, Petersburg A-4).

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, and Dolly Varden trout have been reported in Sarkar and Long lakes, and all of the above species except pink and chum salmon have been reported in the upper lakes.

There is one Forest Service cabin on the system, and it received 200 visitor-days of use during the 1975 season. Sport fishing and canoeing opportunities are excellent throughout this system; and ^{when} ~~if~~ the existing road system in the area ^{becomes} ~~becomes~~ available for public use, recreational utilization of the entire system will undoubtedly increase.

Mud Bay Creek (114-23-070)

This system is located in the Chatham Forest Service District on the north end of Chichigof Island (map reference Juneau A-6). Otter Lake drains into the main system via one of the shorter tributaries.

Silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, and Dolly Varden ~~trout~~ utilize the spawning and rearing area within this system. Pink and chum salmon are periodically abundant with high pink salmon escapements on odd years and Otter Lake reportedly receives runs of red salmon and cutthroat trout. Dolly Varden ~~trout~~ are abundant throughout the system with two to three pounders being common.

There are no Forest Service cabins in the area, but the outstanding fishing opportunities and exceptional scenic beauty of the area point to increasing recreational use.

Kadak Creek (109-42-030)

This sytem is located in the Stikine Forest Service District on Kuiu Island and drains into Kadak Bay (map reference Port Alexander, C-1, D-1; Petersburg, D-6).

Silver salmon, pink salmon, chum salmon, steelhead trout, cutthroat trout, and Dolly Varden trout utilize this system. Pink salmon have been periodically the most abundant with runs exceeding 10,000. Chum and silver salmon runs are smaller. Dolly Varden are the most abundant of the trout, followed by cutthroat and steelhead.

There is one Forest Service cabin at Kadak Bay and it received 222 visitor-days of use in 1976. Sport fishing opportunities are excellent with the majority of use coming from residents of Kake which is nearby.

Sweetwater - Thorne Systems (~~106-30-040~~ & 102-70-058)

These two large and complex systems of lakes and streams are located on the northeast end of Prince of Wales Island in the Ketchikan Forest Service District (map reference Craig D-3, Petersburg A-3; and Craig C-3, C-2). The Sweetwater Lake system contains six major lakes and associated tributaries, and the Thorne system contains seven lake-stream systems.

Both systems are very productive and support significant populations of silver salmon, red salmon, pink salmon, chum salmon, cutthroat trout, steelhead trout, rainbow trout, and Dolly Varden trout. Pink salmon runs in the lower portion of the Thorne system have periodically exceeded 10,000 spawners in recent years.

There are currently no Forest Service cabins in the area and the majority of fishing pressure comes from nearby logging operations. The potentials for wilderness recreation and sport fishing are excellent and the systems are being considered for inclusion in a scenic rivers-wilderness-canoe area.

SOUTHEASTERN ALASKA TRANSPORTATION STUDY
Tentative Schedule

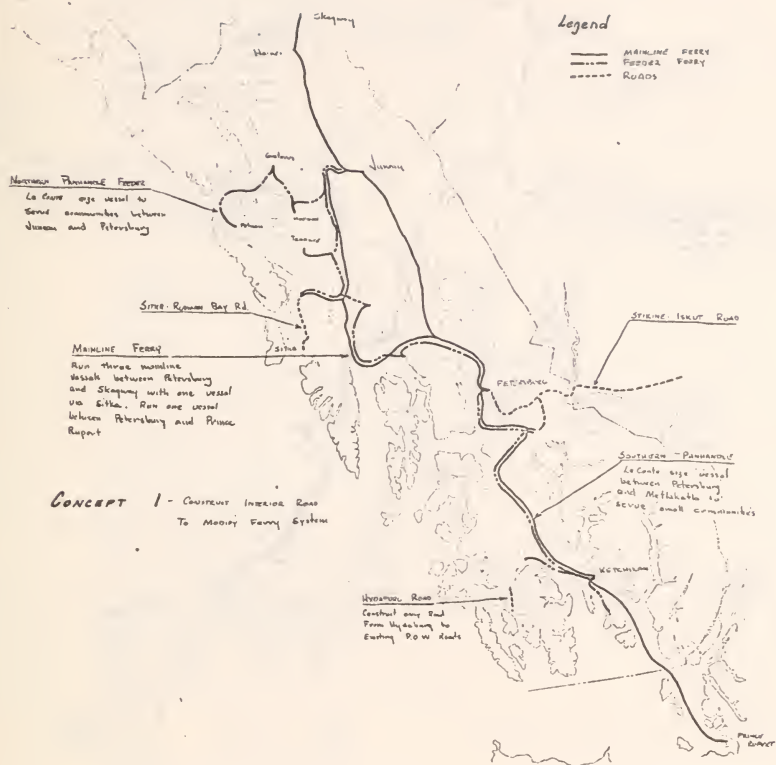
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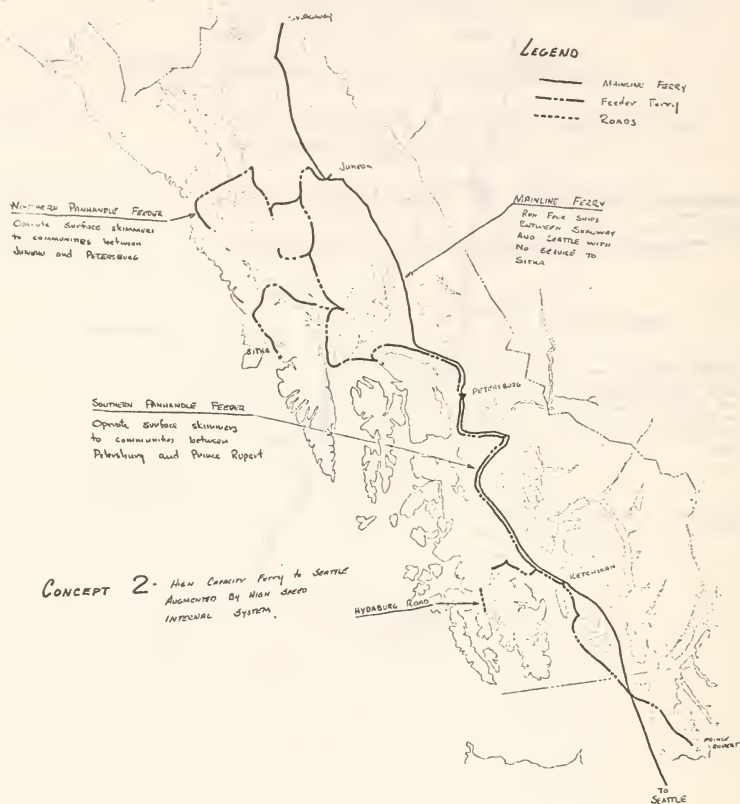
Oct 17 - Nov. 11	Public Workshop - Second Series 19 Communities
Nov. 11	Workshop Summary
Nov. 11	Three Test Transportation System Alternatives identified for modeling and assessment
Dec. 2	Application of computer Demand and Transportation Models to existing and test system alternatives
Dec. 6	Transportation Objectives identified by Interest Group
Dec. 16	Began Evaluation of System Useage and Performance
Dec. 16	Began Evaluation of Transportation Options assessable without model application
Dec. 21	Evaluation Parameters Revised

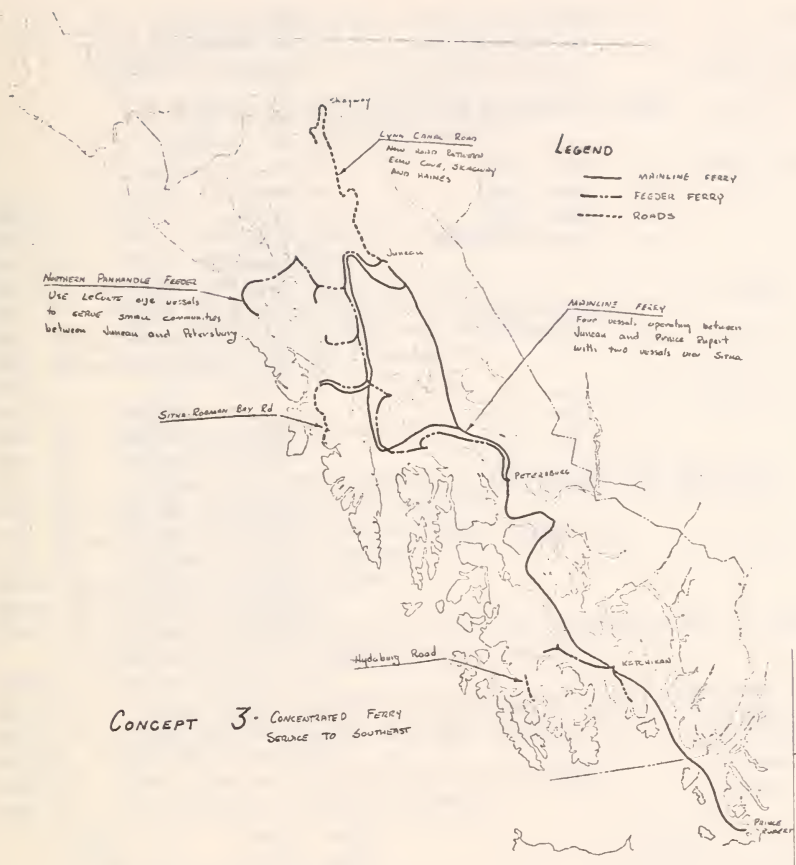
1978

Jan. 3	Began Economic Analysis
Jan. 27	Develop Evaluation Framework
Feb. 3	Develop Tools and Approach to Implementation Strategy
Feb. 10	Print Public Workshop Record (2nd Series)
Feb. 17	Review Implementation Approach
March 10	Complete Interim Transportation Assessment
March 24	Develop Preliminary Intergrated Transportation System Plan for Region
April 7	Model and Assess Preliminary Plan
April 7	Develop Implementation Strategy
April 21	"Final Transportation Assessment", presenting Preliminary Plan and Proposed Implementation Strategy
May 5	Complete review of Final Transportation Assessment
May 24	Print Final Transportation Assessment and distribute summary to public

June 5-21	Conduct Public Hearings
July 1	Revise Preliminary Plan and Implementation Strategy in response to public comments and priorities
July 21	Complete Public Hearing Record
August 15	Adopt Preferred Transportation Plan and Implementation Strategy
August 31	Final Study Report and Executive Summary
September 1	Implement Continuing Planning Process







PROJECTS WHICH
SHOULD BE IN
SYSTEMS MODELLING

PROJECTS WHICH DATA
CAN BE INFERRED FROM
MODELED PROJECTS

PROJECTS WHICH CAN
BE ANALYSED WITHOUT
COMPUTER MODELLING

- Same Hydrofoil₁₈ → 1. Sittku Shuttle Ferry
- PSG/WRG Road₁₈ → 2. PSG Road
→ 3. WRG Road
→ 4. KTN Road
→ 5. WRG / PSG Ferry
- SEA TERMINAL₆ → 6. BEL TERMINAL
- RUP TERMINAL₆ → 6. BEL TERMINAL
- SGY/HNS Road_{20,22} } 7. Lynn Canal Rd + Ferry
8. SGG Road
9. Taku River Rd
10. HNS Road
11. HNS/SGY Road
- Lynn Canal Shuttle ferry₁₈
- Sittku Road 1₅₆ → 12. Sittku Road 2

1. More ferry ships
2. All hydrofoil
3. expand barge
4. centralize barge
5. Airstrips
6. Floats
7. NAVAIDS
8. Prince of Wales Rds
9. Hyakaburg ferry
10. JNU City Terminal
11. JNU Auke Bay Terminal
12. Yakutat Ferry
13. Hoonah Airport
14. Chichagof ferry
15. Kake Road
16. Hydes ferry
17. Metlakatla Mainline Ferry
18. Hollis Mainline Ferry
19. Annette Road
20. Alsek River Road
21. Pelican Road
22. Ketchikan Airport Bridge

PROJECTS WHICH CAN
BE INCLUDED IN
SYSTEMS MODELLING
WITHOUT AFFECTING
SYSTEM CONCEPTS

(These projects should be studied by modelling known to determine impact on characteristics of total system)

Prince of Wales Roads
Hyakaburg ferry
JNU City Terminal
JNU Auke Bay Terminal
Yakutat Ferry
Chichagof ferry

Kake Road
Hydes Ferry ??? (connection to
Metlakatla Mainline Ferry
Annette Road)

CONTRACT SCHEDULE

EXHIBIT "C" SOUTHEASTERN ALASKA TRANSPORTATION STUDY REVISED SCHEDULE

1977

- Nov. 4 Workshop Record (working summary)
- Nov. 11 Define test systems
- Nov. 30 Define goals by Interest Group
- Dec. 2 Apply Models (demand and transportation)
- Dec. 16 Evaluate system useage and performance
- Dec. 16 Develop evaluation framework

1978

- Jan. 6 Review
- Jan. 13 Conduct Economic Analysis
- Jan. 27 Evaluate options
- Jan. 27 Develop tools and approach to Implementation Strategy
- Feb. 10 Review Implementation Approach
- Feb. 10 Prepare Interim Transportation Assessment
- Feb. 24 Select preferred system
- March 10 Model preferred system
- March 10 Develop Strategy
- March 24 Prepare preferred system plan and Implementation Strategy
Report (Final Transportation Assessment)
- March 31 Review completed
- April 17 Print and Distribute Final Transportation Assessment
- April 24 Public Hearing began (series completed by May 11, 1978)
- May 30 Hearing Transcript
- June 30 Adopt Plan and Implementation Strategy
- Aug. 31 Final Reports Excutive Summary

Transportation Objectives

Level of Service

1. Maximize efficiency of total transportation system
2. Maximize dependability of transportation system
3. Maximize safety of transportation system
4. Maximize convenience of transportation system
5. Improve accessibility to interior
6. Improve accessibility between Southeastern communities
7. Maximize all weather reliability
8. Minimize travel time between communities
9. Minimize travel time to other regions
10. Minimize transfers
11. Maximize frequency of service
12. Improve system scheduling potential
13. Improve modal coordination
14. Maximize ferry capacity to other regions
15. Maximize ferry capacity in Southeastern Alaska

Economic

1. Facilitate development and efficient transport of resources
2. Facilitate economic development in rural communities
3. Facilitate development of tourism
4. Minimize transportation costs
5. Equalize transportation costs between modes

Land Use

1. Minimize conflicts with surrounding land uses
2. Improve access to areas with recreation potential

Environmental

1. Minimize impact to areas of natural, asthetic, historic, or cultural value
2. Minimize environmental impacts to air, water, wetlands
3. Minimize adverse impacts to area timber and fisheries resources
4. Minimize energy utilization
5. Minimize intrusion into roadless or wilderness areas
- 6.. Minimize impacts on wildlife and wildlife habitats

Social

1. Minimize impact to current community lifestyles

SOUTHEASTERN ALASKA TRANSPORTATION STUDY
EVALUATION PARAMETERS

(Revised 12-21-77)

Transportation Level of Service

- Days System fails to perform
- Corridor Capacity
- Accident and property damage experience
- Passenger run time
- Passenger delay time
- Freight delivery time
- Service frequency
- Quality of service
- Service at desired travel times
- Accessibility of terminal
- Patronage (traffic prediction's)

Social/Economic

- Alternation of lifestyle
- Change in accessibility
- Access to hunting and recreation
- Change in community interaction
- Impact of historic and cultural sites
- Impact on employment
- Impact on retail sales
- Impact on industrial, resource development
- Total operating and maintenance costs
- Total capital costs
- Total user costs
- Equivalent uniform annual cost

Environmental/Land Use

- Air quality
- Water quality
- Noise, vibration
- Impact on fish and fish habitat
- Impact on wildlife and wildlife habitat
- Erosion, Slope stability
- Visual appearance
- Impact on endangered species
- Change in fuel consumed
- Impact on roadless areas
- Transportation conflicts with existing land use
- Land impacted by transportation improvement

AH:mas

SOUTHEASTERN ALASKA TRANSPORTATION STUDY
List of Reports and Working Papers
Developed and Anticipated

1. Public Workshop Record (Initial Series)
2. Community Profiles (29)
3. Alternative Development Scenarios, SE Alaska
4. Comparison Procedures
5. Evaluation Procedures
6. Passenger Travel Demand Model
7. Freight Demand Estimation
8. Data Sources Report
9. Ecosystem Description
10. Marine Technology Implications, SE Alaska
11. Aviation Technology
12. Transportation Inventory Report
13. Preliminary Transportation Assessment
14. Transportation Objectives
15. Evaluation Parameters
16. Test Transportation System Alternatives
17. Public Workshop Record (2nd Series)

-Interim Transportation Assessment

-Executive Summary of Interim Assessment and Preliminary Plan
selected for presentation to the people

-Evaluation Framework

-Approach to development of Implementation Strategy

-Final Transportation Assessment

-Executive Summary, Preliminary Plan and Proposed Implementation
Strategy

-Public Hearing Record

-Final Study Report

-Executive Summary of Final Study Report

-Statement on Land Technology (one page)

-Computer Models and Documentation

-Training Manuals

-Adopted Preferred Transportation Plan and Implementation Strategy

-Description of Planning Process

SOUTHEASTERN ALASKA TRANSPORTATION STUDY

PUBLIC WORKSHOP

SUMMARY
and
RECORD

State of Alaska
Department of Transportation and Public Facilities
Southeastern Region



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Workshop Brochure

SUMMARY

Seventeen public workshops were conducted during the first two weeks in May. The public workshops were attended by two hundred and forty-five people representing a good cross-section of community interests and transportation carriers. The public workshops were a success, even though the public turnout in the larger communities was a bit disappointing. The persons attending the public workshops were initially surprised and unprepared for our new approach to public participation. However, once they were informed of the workshop format and instructed in the approach and the rules for brainstorming they participated with a degree of enthusiasm and diligence not previously experienced in connection with State projects. With very few exceptions participants left the public workshops with a positive feeling they had had an opportunity to provide direction to the Southeastern Alaska Transportation Study. Many of them were surprised that the workshops were held at all. Though people were impressed at our positive attitude in obtaining their feelings and suggestions, many left questioning whether their suggestions and concerns were really going to be considered.

The following is a summary and record of workshop participant's feelings about transportation services to their community and in Southeastern Alaska. Their feelings and recommendations for study may or may not represent the attitudes of the residents of the area. However, these views can provide public direction to the Study by indicating what concerned residents feel should be studied. The preliminary set of transportation alternatives developed for study is largely based on the recommendations of workshop participants.

Air transportation services were liked by workshop participants for providing fast, scheduled and emergency service. Participants considered Alaska Airlines service to be good, reliable and safe. They disliked Alaska Airline's monopoly in Southeastern Alaska and felt that service frequency should be increased. Alaska Airlines was also criticized for their lack of service to small communities, limited freight capacity, fares and lack of through rates and ticketing for traffic carried by the small carriers from the small communities. Participants indicated that they would like to see competitive jet airline service to Southeastern Alaska provided by a second airline such as Western Airlines. They suggested more frequent flights, lower fares and better service to and within Southeastern Alaska.

Air charter operators were liked for their provision of convenient and fast transportation to the small communities and outlying recreational areas. The availability of air taxi service was appreciated as well as the provision of emergency service. The scheduled service provided by air charter operators under Alaska Airlines charter was also appreciated. Participants considered the fares and freight rates of air charter operators to be expensive. They criticized the limited freight carrying capacity of small aircraft and their unreliability during bad weather. Air taxi operators generally received praise for their services. Workshop participants would like to see lower fares and freight rates; improved and coordinated schedules; and the use of larger aircraft particularly in the transport of mail. Hydaburg, Metlakatla and Pelican would like to have locally based air taxi operators.

Air transportation facilities received very little compliment from workshop participants. The most frequent criticism of air facilities was directed to the lack and/or inadequacy of public shelter and facilities at area seaplane floats and small airstrips. Poor maintenance of floats and airstrips was cited by participants. The inadequacy of navigational aids and lack of lighting were of concern. Workshop participants at Hydaburg and Hyder felt that their community floats needed breakwater protection. Participants most frequently recommended construction of shelters and public facilities at seaplane floats and airstrips and suggested improvements to seaplane floats and airports. Navigational aids was a high priority with Petersburg participants. Angoon, Hydaburg, Kake and Pelican would like to be considered for the construction of airstrips.

The Alaska Marine Highway System was appreciated by workshop participants for providing inexpensive, reliable and safe transportation service. The State ferry system was liked for the transport of vehicles, for recreational use and as a promoter of tourism. However, the State ferry system was also the transportation service most severely criticized by workshop participants. The ferry scheduling and frequency of service received the most criticism. As a method of transport the ferry system was disliked because it is slow. Workshop participants were concerned that the ferry system was emphasizing tourism at the expense of providing good service to Alaskans. The lack of capacity in the summer, high vehicle tariffs, rude personnel, food service, inadequate terminal shelters, reservations system and lack of walk on freight stowage were representative of their concerns. Better scheduling and increased frequency of ferry service with emphasis on service to Southeastern Alaskan residents was suggested by participants as their highest priority.

Participants at workshops held in Craig, Hydaburg, Hyder and Yakutat indicated a desire to see their communities considered for ferry service. Participants frequently suggested the construction of shelters and public facilities at ferry terminals. Suggestions were numerous and included consideration of lower tariffs and continued subsidy.

Marine freight service, principally provided by tug and barge operators, was liked by participants for their low freight rates, bulk carrying capacity, reliability and scheduled service. Barge service was also criticized for freight rates, freight handling and the length of delivery time. Workshop participants would generally like to see more frequent service and lower rates.

Workshop participants generally thought harbor facilities to be inadequate. They recommended consideration of boat harbor improvements in Angoon, Craig, Hoonah, Hydaburg, Kake, Ketchikan, Metlakatla, Pelican, Petersburg and Sitka. A canal was recommended for consideration between Hetta Inlet and Cholmondeley Sound on Prince of Wales Island.

Hydrofoils and air cushion vehicles were recommended for study consideration. Wrangell participants suggested the Study consider shuttle service between Wrangell and Mitkof Island at Blind Slough.

Hyder was the only community with regularly scheduled bus service available at nearby Stewart, B.C. Participants from both Hyder and Stewart liked their bus service but criticized freight rates and limited freight connections. Klawock and Metlakatla participants recommended local public transit. Railroad connections from Juneau, Petersburg and Wrangell to the interior and continental system were recommended for study.

Workshop participants in areas with road systems indicated that they liked the access provided to neighboring communities, recreational areas, air facilities and marine facilities. They considered highway travel to be fast and convenient but dusty, rough and muddy. The principal criticism of roads was the "lack of maintenance of local roads and trails". Participants overwhelmingly recommended better road maintenance especially on local roads and trails. Many felt that the study should consider the development of recreational road systems and inter-community island road system on Prince of Wales Island, Chichagof Island and Kupreanof Island.

Participants in Angoon, Hydaburg, Hyder, Juneau and Petersburg disagreed on the value of a road connection to the continental highway system. They represented a conflicting picture on desires for road access to the interior. Road connections to the continental highway system were suggested for the communities of Juneau, Petersburg, Wrangell, Ketchikan and Yakutat. A highway connection for Petersburg and Wrangell up the Stikine and Iskut River valleys received the most wide spread interest. A number of participants thought that this road connection presented the best potential to complementing the State ferry system. Other specific highway connections suggested for evaluation were (1) a highway between Juneau, Skagway and Haines (2) a highway from Juneau up the Taku River valley (3) a highway from Ketchikan across Revillagigedo Island and up the Unuk River valley (4) a road from Hydaburg to the rest of the Prince of Wales Island road network (5) a road between Kake and Petersburg and (6) various other road connections.

Better weather reporting, an investigation of marine freight rates and an all weather long range medical evacuation plane for the region were suggestions of a more general nature received from workshop participants.



Summary of Public Workshops
by Community

Southeastern Alaska Transportation Study

X = Comment Recorded

(X) = Recorded comment received priority
from participants present



[illegible]

Alaska Marine Highway System (State Ferry)	ANGON	CRAIG	HAINES	HOONAH	HYDABURG	HYDER	JUNEAU	KAKE	KETCHIKAN	KLAMOCK	METLAKATLA	PELICAN	PETERSBURG	SKAGWAY	SITKA	WRANGELL	YAKUTAT
LINES																	
Inexpensive		X	(X)				(X)	(X)		(X)	(X)	(X)	(X)		X		
Ferry Service Appreciated			(X)				(X)		(X)				(X)	X	(X)	(X)	
Reliable and Safe			(X)				(X)					X	(X)	(X)		X	
Scenic							(X)		X		(X)	X	X				
Transports Vehicles		X					(X)						X		X		
Recreation and Tourism			(X)				(X)					(X)	X	X	X		
DISLIKES																	
Inadequate Scheduling &																	
Frequency		(X)	(X)				X	(X)	(X)	(X)	(X)	(X)	X	(X)	(X)		X
Slow		X	X				X	X	X			(X)					
No Preference for Alaskans									(X)				(X)	(X)	(X)	X	
Capacity in Summer							X				X					(X)	
High Vehicle Tariffs			(X)				X		X						(X)		
No Ferry Service					(X)	(X)									(X)		(X)
Rude Personnel and Crew																	
Drinking			(X)				X						(X)				
Food Service									X				X		X		
No Walk-On Freight Stowage												(X)	X				

Alaska Marine Highway System (State Ferry)		ANGON	CRAIG	HAINES	HOONAH	HYDABURG	HYDER	JUNEAU	KAKE	KETCHIKAN	KLAWOCK	METLAKATLA	PELICAN	PETERSBURG	SKAGWAY	SITKA	WRANGELL	YAKUTAT
RECOMMENDATIONS																		
Better Scheduling	(X)										(X)			(X)	X	X		
Increased Frequency in																		
Southeast			(X)					(X)	X	(X)		(X)	(X)	(X)		(X)		
Emphasize Service to																		
Southeast - Not Tourist					(X)			(X)					(X)	(X)	(X)		(X)	
Shelter & Public Facilities																		
at Terminal	X	(X)							X			(X)						
Ferry Service (New)		(X)				(X)	(X)											(X)
Expand Ferry System					(X)			(X)					(X)			X	X	
Local Agent and Reservation																		
Service					(X)						(X)		(X)		(X)			
Continued Subsidy										(X)						X	(X)	
Lower Tariffs			(X)					(X)										
Increased Capacity								X				X						
State Rooms on Feeder Ferries					(X)								(X)					
Facilities for Boarding																		
Elderly and Handi-capped -																		
Elevators					(X)			X										
Longer Ferry Lay-over to																		
Stimulate Local Economy					X								X					

[illegible]

Roads	ANGON	CRAIG	HAINES	HOONAH	HYDABURG	HYDER	JUNEAU	KAKE	KETCHIKAN	KLAWOCK	METLAKATLA	PELICAN	PETERSBURG	SKAGWAY	SITKA	WRANGELL	YAKUTAT
LIKES																	
Lack of Road Access to Outside	(X)				(X)		(X)						X				
Road Access to Other Communities		(X)	(X)							X							
Road Access to Recreational Areas									X								
Fast and Convenient						(X)	X				(X)						
Recreational Drives	X										X						
Economical						(X)											
Road Access to Air and Marine Facilities		(X)						X									
Local Roads & Trails					(X)												
DISLIKES																	
Lack of Maintenance of Local Roads & Trails	(X)	(X)			(X)		X	X		X	(X)						
Lack of Road Access to Outside	X				(X)		X		X				X				
Dusty, Rough and Muddy		X	(X)			(X)				X							

Roads	ANGON	CRAIG	HAINES	HOONAH	HYDABURG	HYDER	JUNEAU	KAKE	KETCHIKAN	KLAMOCK	METLAKATLA	PELICAN	PETERSBURG	SKAGWAY	SITKA	WRANGELL	YAKUTAT
RECOMMENDATIONS																	
Improve Local Roads	(X)	(X)	(X)	(X)	(X)			X		(X)	(X)	X		X	(X)		(X)
No Road Access to Outside	X				X	(X)	(X)	X				X					
Road Access to Outside					X		X		X			X					
Better Road Maintenance	X					(X)				(X)							
Recreational Roads and																	
Improvements	(X)	(X)			X		(X)	X			(X)		(X)	X	(X)		
Road Access to Area																	
Communities				X	X							X					
Stikine Highway Connection																	
to Interior							(X)						(X)			(X)	
Lynn Canal Connection to																	
Interior							(X)							(X)			
Taku Highway Connection to																	
Interior							(X)										
Unuk Highway Connection to																	
Interior									X								
Road Between Hydaburg &																	
Prince of Wales Island																	
Community		(X)			(X)												
Road Between Kake & Petersburg								(X)					(X)				

WORKSHOP RECORD

The purpose of the initial series of Public Workshops was to provide the people of each community with an opportunity to tell the transportation study team which transportation improvements they should study. Workshop participants were usually separated into groups of six to eight. Each group was given large sheets of newsprint and a large felt-tipped marker. The working groups were asked to choose one person to record the concerns and ideas of each participant in their group. A workshop facilitator instructed workshop participants in the rules for brainstorming and helped participants get started.

The Workshop Record represents an aggregation of workshop participant's responses by community to three questions.

1. How do people and goods currently move in and out of your community?
2. How do you feel about transportation services to your community?
Do you like or dislike them?
3. What transportation improvements would you like to see between your community and other communities?

Participants were asked to respond to the first question by listing the methods of transport or carriers used to move people and goods in and out of their community. They were then asked to consider what they liked and disliked about their transportation facilities and services. Each working group was instructed to brainstorm a list of likes and dislikes by transportation method and/or carrier. The group recorder wrote down everyone's responses within their group as quickly as possible. Conflicting responses were often recorded initiating at times a lively discussion. Each participant shared their reasons for listing a particular item and the lists were discussed to the satisfaction of each group. Four stick-on-dots were distributed to each participant with instructions to place two dots in front of the points they liked most and two dots in front of the points they disliked most. Participants were instructed that they could place both dots on one point or on separate points.

After listing and evaluating their transportation system, workshop participants were asked to brainstorm a list of suggested transportation improvements for our consideration and study. Each person was given three dots and instructed to place the dots on the suggestions they felt were most important. They were instructed that they could place the three dots on separate suggestions or two or all three on one suggestion, if they felt strongly about it. Working groups either posted their worksheets on a wall for the other groups to view or reported their groups results to the entire workshop at the conclusion of the Workshop.

The lists and information developed by the separate working groups at each community workshop have been combined to produce the following summary report by community so that each workshop participant can see how workshop participants at their neighboring communities responded. The dots have been totaled and are represented by an asterisk representing each dot placed in front of an item on the work sheets.

COMMUNITY WORKSHOP RECORD

Special Note: Asterisks have been placed in front workshop participant's likes, dislikes and suggested improvements to represent each dot placed by participants on the worksheets as an indication of their priority. Because the workshop participants were instructed to develop as lengthy and comprehensive a list as possible it was also necessary to have them indicate as a group what points and suggestions they felt should receive study priority. This information was accepted by the Study Team as direction from a group of concerned and interested persons which may or may not represent the attitude and position of their community. The Study Team is indebted to the 225 workshop participants for their time, effort and direction.

ANGOON

Priorities Emerging from
Preliminary Public Workshop

8 - Participants



Southeastern Alaska Transportation Study

May 5, 1977
7:30 P.M.
Angoon High School
Angoon, Alaska

Transportation priorities Identified
in Angoon Public Workshop

- I. Modes of transportation currently available in community
 - A. Alaska Outport Transportation Association
 - B. Air taxi service
 1. Eagle Air
 2. Channel Air
 3. Others
 - C. Private boats
 1. Seiners
 2. Pleasure boats
 3. Other fishing boats
 - D. Private barges, such as Anderson Tug and Barge
 - E. Ferry service upcoming
- II. Feelings considered relating to community transportation services
 - A. Services on water evaluated
 1. Likes listed in approximate descending order of priority to workshop participants
 - ***** a. Low prices for freight delivery
 2. Dislikes listed as above
 - *** a. No communication with town from ferry terminal
 - ** b. Lack of dock supervision when unloading
 - * c. Exposed location of ferry terminal with no passenger shelter
 - d. Alaska Outport Transport Association service not frequent enough
 - e. Inadequate boat stalls
 - f. Dock too small, and no launching ramps
 - g. Lack of parking and poor trail to boat harbor
 - h. Freight rates high
 - i. No power at ferry terminal
 - B. Air services evaluated

1. Likes listed as above

- * a. Convenient
- * b. Use in emergencies (U.S. Coast Guard)
- c. Availability
- d. Fast

2. Dislikes listed as above

- *** 1. Increase in plane fares without public input
- * 2. No waiting room or freight storage
- 3. No helicopter pad
- 4. Freight rates high
- 5. Weather always a factor
- 6. Dangerous
- 7. Narrow, congested access to seaplane float

C. Land facilities and services evaluated

1. Likes listed as above

- ***** a. No road to Angoon

2. Dislikes listed as above

- **** a. No maintenance of local road
- *** b. One lane road access to ferry terminal
- c. Hazardous
- d. No road

III. Transportation improvements recommended

A. General recommendations presented

1. Improvements in roads

- ***** a. Improve roads (two-lane blacktop roads)
- *** b. Looped road system
- c. Resurfacing city streets
- ** d. Limiting road use to local traffic
- e. Road maintenance
- f. More protection for Chatham Road

2. Keeping no road to Angoon

3. Hydrofoil system to Juneau

B. Recommendations pertaining to water service listed in approximate descending order of priority to workshop participants

**** 1. Desire for ferry to begin service

** 2. Better ferry scheduleing

3. Public facility at ferry terminal

4. Small boat harbor close to town

5. Breakwater

6. Expanded staging area at ferry terminal

7. Better barge scheduleing (more frequent services)

8. Hydrofoil service to Juneau

C. Recommendations pertaining to air service listed as above

** 1. Airport

2. Waiting room at seaplane float

CRAIG
Priorities Emerging from
Preliminary Public Workshop

18 - Participants



Southeastern Alaska Transportation Study

May 10, 1977

7:30 P.M.

Science Room

Lower School

Craig, Alaska

Transportation Priorities Identified
In Craig Public Workshop

May 10, 1977

- I. Modes of transportation currently available in community
 - A. Scheduled Tyee Airlines service
 - B. Alaska Marine Highway System
 - C. Unscheduled air-taxi and helicopter service
 1. Flair Air
 2. Tyee Air
 3. Coast Guard and private helicopters
 - D. Freighters, tugs and barges carrying water-borne freight
 1. Alaska Outport Transport Association - Klehowa & Snowbird
 2. Ketchikan Transportation - Island Trader
 - E. Motorized vehicles for use on public roads
 1. Trucks and vans
 2. Automobiles
 3. Taxi service
 4. School bus service
 - F. Private boats
 1. Fishing vessels
 2. Pleasure craft
 - G. Private freight carrier via State ferry (infrequent)
 - H. Foreign timber ships
 - II. Feelings considered relating to community transportation services
 - A. Air services evaluated
 1. Likes listed in approximate descending order of priority to workshop participants
- *****a. Convenience and fast

- ***b. Availability in emergencies (Coast Guard & Flair Air)
- ***c. Daily mail service
- *d. Scheduled air service
 - e. Access to out of way recreational areas
 - f. Connection to airport
 - g. Toll-free number for reservations and information
 - h. Seat fare on charters
 - i. Sun streaming through the clouds
 - j. Pilots nice
 - k. Little white bags
 - l. Frequency of scheduled service

2. Dislikes listed as above

- ****a. Air freight prices too high
- *b. Infrequency of major airline service to Southeast Alaska
- *c. Too dependent on weather
- *d. Too much interference in Alaska Transport commission
- *e. Alaska Airlines monopoly
- *f. Coast Guard moving to Sitka
 - g. No early morning flight to Sitka
 - h. Need for a larger plane - either a Mallard or Goose
 - i. Misplacement of freight
 - j. Fear of flying (air sickness)
 - k. Inconvenience on short hops
 - l. Ticketing through travel agencies
 - m. Useless air strip at Klawock
 - n. Short airline hops (Petersburg and Wrangell)
 - o. Luggage handling

B. Alaska Marine Highway services evaluated

1. Likes listed in approximate descending order of priority to workshop participants

- ****a. Ferry service 3 times per week (Wed., Fri. & Sunday)
- **b. Old ferry schedule
 - c. Relatively inexpensive
 - d. Moveability of heavy equipment
 - e. Can take car and bring back purchased goods
 - f. Crystal Dairy Service and fresh produce service on Wednesday via Chilkat
 - g. Convenient - inter-land travel
 - h. Recreational

2. Dislikes listed as above

- *****a. Proposed Aurora schedule of Friday, Saturday and Sunday
 - b. Waiting for tides to board and disembark
 - **c. No family-oriented recreational facilities
 - 1. Too many bars for tourists
 - 2. No libraries
 - 3. No recreational programs
 - 4. No movies
 - d. Slow
 - e. Dependent on weather

C. Waterborne freight and other water services evaluated

1. Likes listed as above

- **a. Klehowa - AOTA cheapest way to receive freight
- **b. Commercial carriers help industry
 - c. Direct scheduled freight service by Klehowa "AOTA" from Seattle
- *d. Coast Guard for emergencies and maintenance

- e. Weekly service from Ketchikan Transportation
 - f. Barge service for moving equipment
 - 2. Dislikes listed as above
 - a. Ketchikan Transportation rates too high
 - b. Klehowa rates on large items and equipment
- D. Land-based services evaluated
- 1. Likes listed as above
 - *****a. Road connection provided to ferry (would like road paved)
 - **b. Road access to other communities
 - c. Road to Thorne Bay to watch T.V.
 - d. Use in recreation
 - e. Opportunity for inexpensive private use
 - f. Use in business
 - g. Ability to travel to Klawock to visit friends and see movies
 - h. Inexpensive
 - i. Big Road system
 - j. Scenery
 - k. Use in hunting, berry picking and trapping
 - 2. Dislikes listed as above
 - ***a. Chuckholes and rocks in roads
 - *b. Summit to Hollis narrow with too many curves
 - **c. Slow completion of Craig-Klawock road
 - *d. Unfinished roads
 - e. Poor selection of contractors in past
 - f. Poor inspection and supervision of construction
 - g. Lack of maintenance to control lake
 - h. Poor engineering

- i. Improper management of transportation and highway departments
- j. Dusty
- k. Soft shoulders
- l. Blind curves on Hollis Road

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

- *****1. Competitive jet service in Southeast Alaska (Alaska Airlines has monopoly)
- *2. Lower freight rates - at least lower minimums
- *3. Airport improvements and maintenance in Klawock (jet service)
- *4. Helicopter stationed on Prince of Wales Island for medical evacuations
- 5. Utilization of existing airstrip for jet or Otter service
- 6. Shelter on seaplane float for waiting goods
- *7. Easier way for disabled to board small planes
- 8. Less State regulation
- 9. Radio aids helping planes to go through pass
- 10. Landing lights on helipad and airstrip
- 11. Planes able to serve Craig in foggy weather

B. Water service recommendations listed as above

- *****1. Daily ferry service (at least every other day)
- ***2. Breakwater built immediately for South Cove
- ***3. Rescue boat stationed in area
- **4. Van unloading on West Coast of Prince of Wales Island
- *5. Sea-land freight terminal desired
- *6. Ferry from Craig to Klawock and Hydaburg
- *7. Hydrofoil service in Southeast Alaska
- **8. Ferry terminal building (toilets - shelter)

9. Off-loading barge ramp for containerized freight
10. Containerized van on ferry for fish and freight products
11. Freight service weekly from Seattle
12. Charter boat service desired
13. Canal from Hetta to Comeldy desired

C. Land service recommendations listed as above

- ***1. Paving of roads, especially Craig-Klawock-Hollis Highway
- ***2. Rock and topping for city streets
- **3. Subsidies for buses and trucks
- **4. Road connection to Hydaburg (Coffman Cove)
- *5. Picnic facilities needed along roads and creeks
- *6. Recreational areas developed
- *7. Winter maintenance
- *8. Guardrails on highway
9. Need for less Alaska Transportation Commission regulation
10. Intra-Island bus service desired between Craig and Klawock, Hollis, Thorne Bay and Hydaburg
11. Freight terminal desired which would include docking area, unloading area and warehouse space
12. Thorne Bay road upgraded and maintained
13. Bridges between islands
14. Pave City streets

HAINES
Priorities Emerging from
Preliminary Public Workshop

13 - Participants



Southeastern Alaska Transportation Study

May 11, 1977

7:30 P.M.

High School Music Room

Haines, Alaska



Transportation Priorities Identified
in Haines Public Workshop

May 11, 1977

- I. Modes of transportation currently available in community
 - A. Southeast Skyways scheduled air service
 - B. Alaska Marine Highway System
 - C. Other air services
 - 1. L.A.B.
 - 2. Skagway Air
 - 3. Private aircraft
 - D. Water-borne freight carriers
 - 1. Lynden Transport (via State ferry)
 - 2. Foss Alaska Line
 - E. Motorized land use Vehicles
 - 1. Bus ~~system~~
 - a. Mar-Air Bus
 - b. Alaska Yukon Coaches
 - 2. Private automobiles
 - 3. Russell Transport (common carrier)
 - F. Private boats
 - G. Existing fuel pipeline between Haines and Fairbanks
 - H. Commercial ocean carriers
- II. Feelings considered relating to existing transportation services
 - A. Air services evaluated
 - 1. Likes listed as above
 - **a. LAB evaluated as good in service
 - **b. Fast
 - *c. Convenience of unscheduled air taxi service
 - *d. Scheduled service

2. Dislikes listed as above

**a. Cost

b. Southeast Skyways - office hours not long enough

***c. Lack of blacktopping on poor runway

*d. No facilities for public at airport

e. Field not certified by CAB

f. No lights

B. Alaska Marine Highway services evaluated

1. Likes listed as above

*****a. Safety in travel and reliable during inclement weather

*b. Inexpensive for passengers

*c. Service appreciated

***d. Brings in tourists

e. Enjoyment of water travel

2. Dislikes listed as above

*****a. Scheduling poor

1. Connections bad

2. Ferries coming together, then none for several days

3. Seating poor

4. Lateness in winter

5. Arrivals at poor times of day

*****b. Personnel very rude

*****c. Cost of fares (expensive for vehicle)

d. Skagway arrival not coinciding with train departure

e. Time loss with slow travel

C. Land services evaluated

1. Likes listed as above

*a. Highway between Haines and the border good

- **b. Access provided to interior and lower 48
- c. Vacations to Whitehorse on weekends possible
- *d. Medical savings gained by travel to Whitehorse
- e. LTI providing quick service from water

2. Dislikes listed as above

- ***a. Highway terrible - dusty, rough and muddy
- b. No road to Juneau
- c. LTI rates too high Haines to Anchorage

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority

- ****1. Runway blacktopped
- 2. Public facilities provided at airport
- 3. Runway lengthened
- ****4. Lighting needed at airport
- 5. Certification needed at airport

B. Water carrier and facilities recommendations listed as above

- ****1. Town facilities for tour ship
- *****2. Scheduling on ferries improved, with scheduling distributed over the week and better running times
- 3. No ferry to Bellingham
- ***4. Lower rates for vehicles
- *****5. Shuttle ferry from Berner's Bay to Mud Bay
- **6. Lower rates for ferry passengers
- **7. Improved public relations need - ferry personnel
- 8. Travel agencies better informed on ferry system schedule
- 9. Freight rates lowered on LTI to Anchorage and Seattle
- 10. Hydrofoil service between Juneau, Haines and Skagway

C. Land transportation recommendations listed as above

- *1. Road repaved between Mile 5 and 27
- *2. Historical land markers placed
- 3. Rest stops

HOONAH

Priorities Emerging from
Preliminary Public Workshop

13 - Participants



Southeastern Alaska Transportation Study

May 2, 1977

7:30 PM

Community Building
Hoonah, Alaska

Transportation Priorities Identified
in Hoonah Public Workshop
May 2, 1977

- I. Modes of transportation currently available in community
 - A. Alaska Marine Highway System
 - B. Air taxi and private aircraft
 - C. Boats and barges chartered out of Seattle, such at the Klehowa
- II. Feelings considered relating to community transportation services
 - A. Ferry services evaluated
 1. Likes listed in approximate descending order of priority to participants
 - ***** a. Safety and reliability of large vessels keeping weather from interfering with operations
 - *** b. Cost inexpensive for individuals, vehicles and large groups of people
 - c. Ability to handle large freight items
 - d. Convenience, comfort, and scenic beauty of ferry service
 - * e. Mobility of vehicles and bulky freight
 - f. Elderly and handicapped accomodated well
 - * g. Scheduling for special groups
 - h. Less damage to freight transported in vans on ferry
 2. Dislikes listed in approximate descending order of priority to participants
 - ***** a. Winter lay-up of ferries when service most needed
 - ***** b. Overbooking and changing schedules
 - c. Slowness of transportation
 - d. Service not frequent enough
 - e. Terminal unfinished, without lights, restrooms, or heat
 - f. No bus service into Juneau from Auke Bay

B. Air taxi, private aircraft and air facilities services evaluated

1. Likes listed as above

- ****a. Regularity of availability through radio communications
- ****b. Fast (saving time in dollars)
- ***c. Convenient
- *d. Ready access to isolated areas through land and float capacity
- e. Availability provided through having a pilot stationed in Hoonah
- f. Versatility of use
 - (1) Business use
 - (2) Medical emergencies use
 - (3) Personal pleasure use
 - (4) Movement-of-perishables and mail use

2. Dislikes listed as above

- *****a. Landing strip poor, too short for good approach
- ***b. Road to airport poor
- ***c. No airport terminal, no phones and no restrooms at airport
- d. No weather reporting facility
- e. Cost high for routine business
- f. Elevation of airstrip too low
- g. No landing lights
- h. Cost of public transportation at Juneau Airport to downtown

C. Charter boats and barges considered

1. Likes listed as above

- a. Only available bulk freight carrier
- b. Cost inexpensive
- **c. Refrigeration available on tugs and barges

2. Dislikes listed as above

- a. Congestion related to dock unloading
- * b. Vans having difficulties with low wires and narrow mud roads
- c. No means of shipping North except through Seattle

III. Transportation improvements recommended

A. General recommendations presented

- ***** 1. Improve local roads
- 2. Weather reporting improved for air taxi and private marine transportation
- * 3. Developing docking facilities for private marine transportation between Hoonah and other Southeast communities
 - a. Emergency shelters built
 - b. Boat repair structures built
- 4. More road construction, possibly to Tenakee
- B. Ferry service recommendations listed in approximate descending order of priority to workshop participants

- ***** 1. Service year-around
- **** 2. Service Southeast communities rather than tourists
- *** 3. Facilities for on boarding of handicapped and elderly - elevators
- * 4. Ferry scheduling made more reliable (better weekend schedule between Hoonah and Juneau)
- * 5. Full-time agent for information and ticket purchase
- * 6. Expanding ferry service to Glacier Bay
- 7. Developing marine transportation to Western Alaska communities
- 8. Ground transportation from terminals to downtown or center of communities
- 9. Freight service less expensive between Juneau and Hoonah
- 10. Longer stays in communities to allow for more economic impact
- 11. Facilities for refrigeration available on ferry
- 12. Ferry based in Hoonah
- * 13. Sleeping facilities on ferries

14. No overbooking

C. Air service recommendations listed as above

- ***** 1. Lengthen and elevate airport runway and improve approach
 (clearing trees and providing lighting at runway)
- ** 2. Regular air service between Hoonah and surrounding
 communities such as Angoon, Pelican, Tenakee and Elfin
 Cove
- * 3. Availability of fuel at Hoonah Airport
- 4. Less expensive air service to other Southeast communities
- 5. Increasing personnel at Hoonah airport for better maintenance
- 6. Tie downs at airport
- 7. Comfort facilities at airport

D. Barge service recommendations listed as above

- 1. Freight service between Juneau and Hoonah less expensive
 by commercial carrier
- 2. Handling facilities improved at City Dock

HYDABURG

Priorities Emerging from
Preliminary Public Workshop

26-Participants



Southeastern Alaska Transportation Study

May 12, 1977

7:30 P.M.

A.N.B. Hall

Hydaburg, Alaska

Transportation Priorities Identified
in Hydaburg Public Workshop

May 12, 1977

- I. Modes of transportation currently available in community
 - A. Tyee Airlines scheduled air service
 - B. Air charter service, including helicopters
 1. Webber Air
 2. Ketchikan Air
 3. Revilla Air
 4. Flair Air (Klawock)
 5. Todd Air
 6. TEMSCO helicopter
 - C. Water-borne freight carriers
 1. AOTA (Alaska Outport Transport Association)
 2. Ketchikan Transportation
 - D. Private boats
 - E. Bulk fuel deliverers
 1. Standard Oil Company
 2. Union Oil Company
 3. Foss Tug and Barge
 - F. Coast Guard vessels for emergency use
 - G. Roads for local use
1. Feelings considered relating to community transportation services
 - A. Scheduled air service evaluated
 1. Likes listed in approximate descending order of priority, to workshop participants
 - ***** a. Good service provided by Tyee Airlines
 - ***** b. Scheduled service (type)
 - ** c. Fast
 - * d. Use for emergency evacuations

- e. Freezer service good
- f. Excellent agent service from (Tyee)

2. Dislikes listed as above

- **** a. Lack of landing strip and helipad
- **** b. No breakwater at seaplane float
- ** c. Red tape involved in emergencies (Coast Guard)
- d. Float repair neglected
- e. Planes not large enough and float facilities inadequate for larger aircraft
- f. No seaplane ramps
- g. No lighting for emergency purposes
- h. High cost of freight and passage
- i. Lack of adequate passenger facilities
- j. Lack of weather reports
- k. Weather impairs emergency service
- l. Lack of Navigational Aids
- m. Lack of competition

B. Air charter service not separately evaluated

C. Water-borne freight carriers' services evaluated

1. Likes listed as above

- ***** a. Alaska Outport Transport Association-reasonable rates and scheduled service from Seattle to Hydaburg (good service)
- *** b. Chance for community to import and export freight
- ***** c. Boat harbor
- d. Convenience of service
- e. Ability to fill fuel orders for individuals
- * f. Seine boat available

2. Dislikes listed as above

- ***** a. Lack of ferry service
- ** b. Lack of breakwater at boat harbor and cannery

- * c. Arrivals are at any hour-day or night
- ** d. Ketchikan Transportation's infrequent service and high rates
 - e. Lack of docking facilities
 - f. Approach to dock inadequate
 - g. Goods arriving damaged
 - h. Customers sometimes not notified when they have FOB
 - i. Lack of drydocking and storage facilities
 - j. Causeway inadequate-needs upgrading
- D. Coast Guard's services disliked for red tape procedures in medical evacuations
- E. Land transportation services evaluated
 - 1. Likes listed as above
 - ***** a. Isolation - no connecting road
 - ** b. Local roads and trails
 - 2. Dislikes listed as above
 - ***** a. Lack of maintenance on existing roads (potholes)
 - ***** b. Lack of connecting road to Hollis
 - * c. Lack of roads and trails for recreation (more funding)

III. Recommended improvements in transportation services

- A. Air service recommendations listed in approximate descending order of priority to workshop participants
 - ***** 1. Need for helicopter pad or airstrip
 - ***** a. Need helicopter pad
 - ***** 2. Need for air taxi equipped to fly at night, for evacuation purposes
 - ***** 3. Need for lower rates on air fare and freight
 - *** 4. Need for passenger waiting room at airplane float
 - 5. Need for float storage facilities
 - * 6. Need for locally-based air taxi service
 - * 7. Need better seaplane landing facilities

B. Sea service recommendations listed as above

- ***** 1. Need for ferry service
- ** 2. Need for weekly freight run to Ketchikan
- *** 3. Need for improved harbor facilities
 - a. Breakwater for plane and small boat harbor
 - ** b. Better freight docks and storage facilities
 - * c. Barge loading and unloading facility
- * 4. Need for lower freight rates from Ketchikan
- 5. Need for more frequent freight trips in winter
- 6. Need for public utilities at boat harbor
- 7. Need for improved methods of protection in-route, in general

C. Road service recommendations listed as above

- ***** 1. Need for road connections to other communities on Prince of Wales Island and ferry terminal near Hollis
- ***** 2. Need for upgrading and maintenance of existing roads (need equipment)
- **** 3. Need for closer check on logging near salmon streams
- *** 4. Need for locks between Slazer and Chalmers
- * 5. Need road access to Copper Mountain Hydro-Electric Site
- 6. Need for recreational roads and trails to scenic areas
- 7. Need to keep isolation



HYDER

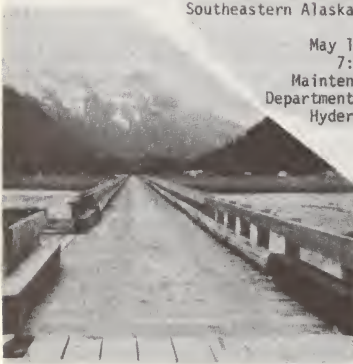
Priorities Emerging from
Preliminary Public Workshop

29-Participants
+(11-from Stewart, B.C.)
*(18-from Hyder, Alaska)



Southeastern Alaska Transportation Study

May 10, 1977
7:30 PM
Maintenance Shop
Department of Highways
Hyder, Alaska



Transportation Priorities Identified
In Hyder Public Workshop
May 10, 1977

- I. Modes of transportation currently available in community
 - A. Trans Provincial Air daily service at Stewart Airport
Daily scheduled air service to Prince Rupert and Vancouver
 - B. Air taxi services from Ketchikan
 1. Webber Air with mail plane
 2. Todd Air Service once a week
 3. Coast Air
 - C. Rivtow Straits weekly barge service
 1. Route between Stewart, Rupert, and Vancouver
 2. Service bonded for Hyder
 - D. Lindsay Truck Transport service twice weekly
 1. Service weekly North on Cassiair Highway
 2. Service bonded for Hyder
 - E. Passenger launch Lumba Lumba weekly
 1. Service between Bella Bella, Rupert, and Stewart
 2. Capacity for 20 passengers
 - F. Farwest bus service from Stewart
 1. Service twice weekly, Monday and Friday
 2. Mail and passengers transported
 - G. Northland road transportation via Kitimat and Terrace until March 1977
 - H. Cornell Travel
 - I. Private carriers and vehicles
- II. Feelings considered relating to community transportation services
 - A. Trans Provincial Airlines services evaluated
 1. Likes listed in approximate descending order of priority to workshop participants

- a. Service good
 - +++* b. Fast
 - +* c. Convenient
 - d. Scheduled service
- 2. Dislikes listed as above
 - * a. Expensive for moving freight (high rates)
 - b. Poor connections with other airlines
 - c. Equipment old
 - d. Unreliability due to weather
 - e. Inability to take auto
 - f. Inability to handle large items
 - + g. Expensive
- B. Air taxi and mail plane services evaluated
 - 1. Likes listed as above
 - **** a. Fast
 - b. Available
 - ***** c. Cheaper than private charter (mail plane)
 - ***** d. Convenient
 - ** e. U.S. Parcel Post economical (air)
 - 2. Dislikes listed as above
 - **** a. Undependable-weather problems (mail plane and air taxis)
 - * b. Limited passenger and freight capacity
 - c. Sloppy handling of freight (mail plane)
 - * d. Expensive freight rates (mail plane)
 - * e. Expensive
 - * f. U.S. Parcel Post delays (air)
- C. Water-borne freight services evaluated (Rivtow)
 - 1. Likes listed as above

- a. Reliability of service
- b. Scheduled weekly service
- + c. Ability to ship bulk freight
- * d. Delivery door-to-door

2. Dislikes listed as above

- +**** a. Rates doubled in price
- **
- b. Bookkeeping poor
- *** c. Breakage and damage a problem
- +* d. Lead time too long
- + e. Personnel forgetful
- f. Slow payment on damage claims
- g. Extensive handling of freight
- h. Pilferage
- + i. Discontinuance of service by Northland
- ++ j. No ferry service.

D. Lumba Lumba water-borne passenger services evaluated

1. Likes listed as above

- +++++*a. Reliable
- ***b. Nice trip
- *c. Fun

2. Dislikes listed as above

- +++++*a. Inability to travel with auto
- ++*b. Expensive
- c. Seasickness incurred
- *d. Sneaks into port (no agent)
- e. Slow

D. Land use services evaluated

1. Farwest bus service considered

- a. Likes listed as above

- ***+***** (1) Reliability of service (good service)
- +++ (2) Scheduled service
 - (3) Low cost of service
 - (4) Convenient
 - (5) Connections good
 - *(6) Bus drivers nice
 - (7) Parcel post service economical
- b. Dislikes listed as above
 - (1) Freight rates high
 - (2) No service to stateside or Alaska
 - (3) Infrequency of service
 - (4) Rough roads making ride bumpy
 - + (5) Limited freight connections
- 2. Lindsay Freight services evaluated
 - a. Likes listed as above
 - *(1) Service door-to-door
 - *(2) Pick up hitch hikers
 - ++*(3) Reliability of service
 - (4) Regularity of service (weekly service)
 - b. Dislikes listed as above
 - +++ (1) Freight rates high
 - (2) No service when road is closed
 - (3) Breakage and damage to freight
 - ++ (4) Poor thru connections from Lower 48
 - (5) No access to Alaska
- 3. Auto and private carriers' services evaluated
 - a. Likes listed as above
 - ++*(1) Ability to take family

* (2) Costs economical

+* (3) Fast and convenient

b. Dislikes listed as above

** (1) Roads rough

(2) Gas expensive

(3) No access to Southeastern Alaska

(4) No facilities

(5) Road constitutes long way around

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

***** 1. Breakwater to assist aircraft landing in rough water

+ 2. Air service two or three times weekly from Ketchikan

++ 3. Better air service to area

*** 4. Larger aircraft for mail service when required (sometimes mail delayed when plane is full)

*** 5. Ship all U.S. mail through Ketchikan

6. Cheaper air freight service

* 7. Mail service more dependable

8. Passenger rates lower

B. Water service recommendations listed as above

***** 1. State ferry service started two or three times weekly
+++++++ to Ketchikan and Rupert - construct area ferry docking
+++++++ facility (Ferry service will develop tourist industry)

***** 2. Dependable private boat service

++++***** 3. Northland Prince re-established with old rates

4. Stop at Hyder and pick up passengers on Inside Passage tours

5. Better and low cost freight service

C. Land use recommendations listed as above

++++* 1. Nass River Bridge burned or torn down

+++* 2. Assistance to Canadians in upgrading roads

D. General recommendations listed as above

- ***** 1. Leave transportation service like it is!
- +++++ 2. Relief from oil costs 12% per gallon higher because brought via Stewart (due double taxation in part)
- +++++ 3. Relief from high electricity costs
- 4. Groceries allowable through U.S. Customs at rate of \$10.00 per person daily from Stewart
- 5. Assist Canadians in transportation improvements due to reliance on higher cost Canadian food and goods as only source of supply

Note: Preference of participants denoted by a "+" for Stewart residents and a "*" for Hyder residents.



JUNEAU
Priorities Emerging from
Preliminary Public Workshop

15 - Participants



Southeastern Alaska Transportation Study

May 2, 1977

7:30 P.M.

Juneau-Douglas High School

Cafeteria

Juneau, Alaska

Transportation Priorities Identified
In Juneau Public Workshop

May 2, 1977

- I. Modes of transportation currently available in community
 - A. Alaska Airlines and Wein Air Alaska
 - B. Alaska Marine Highway System
 - C. Local aviation firms and privately owned aircraft, including air taxis and helicopters
 - 1. Channel Flying
 - 2. LAB Flying Service
 - 3. Southeast Skyways
 - 4. Ward Air
 - 5. Livingston Copters Inc.
 - D. Tugs and barges carrying water-borne freight
 - E. Private motorized vehicles for use on public roads
 - F. Charter boats
 - G. Privately owned small boats
 - H. City buses and taxicabs
 - I. Fishing vessels
 - J. Specialized-use vehicles
 - 1. School buses
 - 2. Emergency medical vehicles
 - 3. Mail trucks
 - 4. Research boats
 - 5. Charter and tour buses
 - 6. Special project E/H vehicles
 - K. Trucks for transport
 - L. Bicycles and feet

II. Feelings considered relating to community transportation services

A. Alaska Airline services evaluated

1. Likes listed in approximate descending order of priority to participants

*****a. Fast

b. Reliable

* c. Service and comfort good

d. Fare costs economical when traveling long distances to Anchorage or Outside

e. Convenience

f. Safety

g. Scheduled

2. Dislikes in approximate descending order of priority to participants

*****a. Lack of flexibility in servicing local communities because all aircraft are jets and require special landing facilities (scheduling poor to smaller communities)

***b. Sensitive to local weather conditions

***c. Lack of competition

d. Freight capacity limited - dimensions of freight

*e. Limited destinations

*f. Relatively expensive

g. Need for early reservations

h. First-class sections

i. Overbooking

j. Change in frequency of service summer vs. winter

B. Alaska Marine Highway Services evaluated

1. Likes listed as above

***a. Made Southeastern Alaska a good place to live

b. Aesthetic value as perpetuator of Alaskan lifestyle

** (1) Trips scenic and relaxing

- * (2) Service promotes tourism
 - *b. Transports vehicles
 - c. Good alternative for those who don't like to fly
 - d. Good mode for youth travel
 - *e. Reliability
 - *f. Economical method for intra-Southeast Alaska travel (inexpensive)
 - g. Dependability of scheduling
 - h. Value for recreation
 - i. Unique way to socialize
 - j. Relaxing
 - k. Extends land Highway System
 - l. Main terminal should be Juneau City
- 2. Dislikes listed as above
 - a. Capacity inequities presenting a problem
 - (1) Staterooms unavailable in summer
 - (2) Winter discount not high enough
 - b. Slow travel mode
 - *c. Expense when car is taken
 - ****d. Stops limited because not enough communities served
 - e. Restrictions on cargo
 - f. No direct access to Anchorage
 - g. Crew drinking problem
 - **h. Service disruptions
 - i. Lack of comfort and tidiness
 - *j. Ferries are run for the convenience of the employees
 - k. Overbooking
 - l. Inconvenient schedules

*m. Terminal locations at Auke Bay

C. Locally owned aviation firms and privately owned aircraft, including air taxi and helicopter service evaluated

1. Likes listed as above

***a. Service on demand

- b. Direct access to outlying areas with no other transportation mode available
- c. Flexibility in scheduling
- d. Cost low per seat per mile on charters

2. Dislikes listed as above

a. Safety sometimes negative factor

- 1. Navigational aids inadequate
- 2. No lighting at bush airports such as Gustavus and Hoonah

b. Costs high

- 1. Fares
- 2. Initial outlay for private airplane

c. Poor safety record

D. Barges and tugs carrying water-borne freight evaluated

1. Likes listed as above

**a. Inexpensive for bulky goods and freight

- b. Only service available for some smaller communities
- c. Environmental damage incurred relatively minimal
- d. Capacity capability
- *e. Continuity of intermodal service
- f. Dependability of scheduling
- g. No governmental subsidy

2. Dislikes listed as above

- a. Small boat harbors in many places inadequate for barge docking and unloading

- *b. Merchandise damaged at times
- c. Barges not frequent enough coming once a week
- *d. Slow delivery service
- e. Instability of ownership and management
- f. Lack of competition
- g. No passenger capacity
- h. Lack of convenience for small customers
- i. Lack of availability especially to Alaska residents
- j. Differential in freight rates for various items

E. Highways and roads evaluated as used by motorized private vehicles

1. Likes listed as above

- ***a. Limitation in access with no connection to outside world (no highway to Haines)
- b. Speed of vehicle travel
- c. Facilitation of bus and ferry travel

2. Dislikes listed as above

- ***a. Negative environmental impact
- **b. No road connection to the continental road system or to other communities
- c. Maintenance poor and costly
- d. Car ownership required to effectively use roads
- *e. Lack of long range road plan
- f. Lack of clarity as to location of State roads
- g. No railroad connection to lower States

F. Charter boats and privately owned small boats evaluated

1. Likes listed as above

- a. Flexibility of travel
- b. Positive intermodal value in promoting tourism

- c. Opportunities for recreation
- 2. Dislikes listed as above
 - a. Charter boat operating costs high
 - b. Private boats requiring large initial capital outlay
 - c. Lack of docking facilities
- G. Transit buses and taxicabs evaluated
 - 1. Likes listed as above
 - a. Elimination of parking fees
 - b. Elimination of need to find parking space
 - c. Express runs
 - 2. Dislikes listed as above
 - *a. Taxi service extremely expensive
 - *b. Buses not scheduled often enough or late enough
 - c. No express runs available
 - d. Poor safety record of local taxis
- H. Fishing vessels evaluated
 - 1. Likes listed as above
 - a. Importance to economy
 - b. Importance to lifestyle
 - c. Freight capability
 - 2. Dislikes listed as above
 - a. Maintenance expensive and difficult
 - b. Insurance hard to obtain
- I. School buses evaluated
 - 1. Likes listed as above
 - *a. Safety highest in State
 - b. Personnel friendly and cooperative
 - c. Traffic control assistant employed

2. Dislikes listed as above

- a. Lack of economy in operation
- b. Representation of a single interest group

J. Bicycles and foot transportation evaluated

- **1. Liked for recreation and ecologically favorable
- **2. Dislike lack of paths

III. Recommended improvements in transportation services

A. General recommendations presented

- *1. Safety improved for all air and marine systems through better navigational aids
- *2. Autonomy of local communities in transportation planning
- *3. Improvements in weather reporting
- ***4. Acquisition of air cushions vehicles (ACV'S) for intra-region transport

B. Ferry service recommendations listed in approximate descending order of priority to workshop participants

- ***1. Scheduled freight and passenger service to smaller communities
 - *****a. Ferry service to Gustavus
- **2. Full utilization of existing system to increase service and faster ferry service to participating communities
 - *a. Keeping LeConte in service 24 hours a day
 - b. Service weekly to Angoon, Pelican and Gustavus
 - c. Service twice weekly to Hoonah
 - **d. Increase frequency of ferry service in Southeast Alaska
- 3. Express ferry system within Southeast
- 4. More consideration to Alaskan residents in ferry operation
 - a. Keeping ferries for residents alone
 - **b. Separating ferry services for residents and tourists

5. Changing destinations on long runs

*a. Termination of all ferries in summer at Prince Rupert (eliminate Seattle run)

*b. Termination at Bellingham instead of Seattle

6. Ambulatory assistance in stairwells of ferry

*7. Cost of ferry operation reduced to the level of highway costs

8. Capacity of ferries increased

*9. Upgrade ferries

C. Air service recommendations listed as above

****1. Competitive service from a second airline such as Western Airlines

****2. Service within Southeast improved with higher frequency of flights and lower rates

3. Commuter flights to Anchorage (early A.M. & P.M. flights to allow one day business trip)

*4. Better float plane facilities

*5. Through service recommended to Fairbanks and other points South and Midwest

*6. Improvements in physical facilities for intra-Southeast service

7. Construction of an airport at Kake

D. Highway and road service recommendations listed as above

***1. Road connection to Cassiar Highway via the Taku River Valley

***2. Stikine/Iskut road connection to Cassiar Highway in Canada

*3. Road connection to Haines

**4. No duplication of overland and marine highway systems

**5. More bike paths

*6. No highways out of Juneau to outside world (no road to Haines)

*7. Recreational access improved

8. Improvements in existing road system

9. Thunder Mountain Expressway (Mendenhall Valley in Juneau)
10. Limiting public access to logging roads
- *11. Supporting law enforcement to decrease drunken driving



KAKE

Priorities Emerging from
Preliminary Public Workshop

3-Participants



Southeastern Alaska Transportation Study

May 9, 1977

7:30 PM

Kake School Cafeteria

Kake, Alaska

Transportation Priorities Identified
in Kake Public Workshop
May 9, 1977

- I. Modes of transportation currently available in community
 - A. Island Air scheduled flights - mail
 - B. Alaska Marine Highway System
 - C. Private air taxi services
 - 1. Eagle Air and Channel Flying
 - a. Air taxi service
 - b. Medical evacuation contract
 - D. Water-borne freight carriers
 - 1. Alaska Outport Transportation Association
 - 2. Private barges serving logging camps
 - 3. Private boats
 - a. Freight carriers
 - b. Charter carriers
 - c. Passenger carriers
 - E. Standard Oil barge carrying fuel
- II. Feelings considered relating to community transportation services
 - A. Water services evaluated
 - 1. Likes listed in approximate descending order of priority to workshop participants
 - **a. Ferry most economical and convenient for shipping
 - b. Trip to Petersburg pleasant
 - c. Good food and crew on ferry
 - 2. Dislikes listed as above
 - *a. Inadequate waiting room at ferry terminal
 - b. Staterooms not available on LeConte, for those ill or those taking long trips

- *c. Winter layup of ferry with no replacement
- d. Separation of bar from food service on LeConte

B. Air services evaluated

- **1. Liked for convenience of service
- 2. Dislikes listed as above
 - * a. Scheduled flights not frequent enough
 - b. Increases in costs
 - c. No airports
 - d. Skiffs tied to floats and on floats

C. Land services evaluated

- 1. Liked for access to moorage facilities
- 2. Dislikes listed as above
 - * a. No maintenance beyond three miles limiting access to recreation areas
 - b. Access to dump site not maintained in winter
 - c. No access to medical facilities

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

- *1. More scheduled flights desired
- *2. Airport built
- 3. Waiting room facilities on floats
- 4. Central agent for air taxes
- 5. Regulations concerning tariffs, split fares, etc.

B. Water service recommendations listed as above

- *1. Boat harbors improved
- *2. Breakwater installed
- 3. Ferry service more frequent
- 4. Terminal building similar to Hoonah's
- 5. Utilities and public facilities at harbor

C. Land service recommendations listed as above

- ** 1. Land route to Petersburg
- 2. Road to Hamilton Bay Recreation Area
- 3. Roads in immediate area upgraded
- 4. Better maintenance of roadway

KETCHIKAN

Principles Drawing from
Preliminary Public Workshop
12-Participants



Southwestern Alaska Transportation Study

May 9, 1977

1-30 PM

Ketchikan High School
Humanities Building
Ketchikan, Alaska



Transportation Priorities Identified
in Ketchikan Public Workshop

May 11, 1977

- I. Modes of transportation currently available in community
 - A. Commercial airlines
 - 1. Alaska Airlines
 - 2. Transprovincial Airlines
 - B. Alaska Marine Highway System
 - C. Local aviation firms and privately-owned aircraft, including air taxis and helicopters
 - 1. Ketchikan Air Service
 - 2. Revilla Air
 - 3. Webber Air
 - 4. Tyee Air (scheduled service to outlying communities)
 - 5. Todd Air
 - 6. TEMSCO
 - 7. Flair Air (Klawock)
 - 8. Skyhie Helicopter
 - D. Water-borne freight carriers
 - 1. Foss Alaska Line
 - 2. Boyer Towing
 - 3. Lynden Transport (common carrier via ferry)
 - 4. Ketchikan Transportation
 - E. Land-based local transportation
 - 1. Taxi service
 - 2. Bus service
 - 3. Ferry to airport (Borough operated)
- II. Feelings considered relating to community transportation services
 - A. Alaska Airline service evaluated
 - 1. Likes listed in approximate descending order of priority to workshop participants

- *a. Fast
- ***b. Scheduled service (on time performance)
- ***c. Facilities for handling passengers good
- **d. Personnel competent and service good
 - e. Use in medical emergencies
 - f. Jet service
- 2. Dislikes listed as above
- *****a. Scheduling inconvenient (Ketchikan - Seattle & Ketchikan - Anchorage)
- **b. Lack of competition
- *c. Expensive for Alaskan travel
- *d. Luggage time too long at Juneau
 - e. Anchorage "milk run" flight
 - f. Meals inadequate on Ketchikan/Fairbanks flight
- * g. Service inadequate to Northern communities
- * h. Stopover for \$5.00 unnecessary
 - i. Frequency in summer
 - j. Freight service poor
- B. Ferry services evaluated
- 1. Likes listed as above
 - a. Rides comfortable
 - b. Advantage given to senior citizens (winter)
 - c. Scenery beautiful
 - d. Local cruises
 - * e. Food service high quality (not cafeteria)
 - * f. Orientation toward water
 - ** g. Scheduled ferry service
- 2. Dislikes listed as above
 - **a. Management confused

- ** b. Summer use not for Alaskans
 - *** c. Scheduling inadequate
 - * d. Inadequate ferry terminal facilities
 - * e. Poor location (too far from downtown)
 - f. Service between Rupert and Ketchikan too time consuming
 - g. Ticketing inefficient
 - h. Lack of competition
 - i. Cost too high
 - * j. Prince of Wales Island service poor (travel time long and greater frequency)
 - k. Not enough public input
 - l. Food service poor
 - m. Bellingham disliked as possible southend site
 - n. Local cruises
- C. Air-taxi services evaluated
- 1. Likes listed as above
 - ***** a. Quality of service good
 - **b. Convenience of service
 - c. Availability and use for medical emergencies
 - d. Quantity sufficient
 - 2. Dislikes listed as above
 - a. Cost
 - b. Noise
 - c. Inadequate airport seaplane float
- D. Water-borne freight services evaluated
- 1. Likes listed as above
 - *****a. Service competitive
 - b. Service weekly for perishables and dry freight
 - c. Regular service

2. Dislikes listed as above

- *a. Cost high, no competition on barge freight rates
- b. Speed slow
- c. No thru rate for Prince of Wales Island
- d. Inadequate port facilities (need big crane)

E. Services on land evaluated

1. Likes as above

- a. State maintenance of Harriet Lake Road
- *b. Proposed downtown by-pass
- c. Forest service roads to recreational areas

2. Dislikes listed as above

- **a. No bridge to airport
- b. No circular island road system
- c. No mass transit
- d. No road access to Outside or rest of Alaska
- e. Udall bill
- f. Tongass Ave. construction

F. Borough ferry services evaluated

1. Likes listed as above

- a. Water orientation

2. Dislikes listed as above

- ***a. Operation dictated by Alaska Airlines schedule
- *b. Poor coordination with city bus and state ferry
- **c. No weather protection (approacher ramps)
- *****d. Lack of bridge to airport
- *e. Inconvenience in time, comfort and visual aspects
- f. Not responsive to public needs
- g. Sharing terminal with State ferry (Chilkat)

- h. Frequency inadequate
- i. Baggage handling poor
- j. Inadequate vehicle capacity

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

- ****1. Competitive air service between Southeast Alaska and Lower 48
 - 2. Lower rates
 - 3. New operator of airport limousine service
- *4. Retention of \$5.00 stopover fare
- 5. Small plane facility needed
- 6. Improved scheduling - Alaska Airlines
 - a. Less bunching of Seattle bound flights
 - b. Elimination of milk run to Anchorage

B. Alaska Marine Highway recommendations listed as above

- *****1. Establish Marine Highway Maintenance and supply facilities
- **2. More frequent ferry service
- **3. More frequent ferry service to Prince of Wales Island
 - 4. More frequent ferry service to Seattle
- *5. Continue ferry subsidy
- *6. Budget and cost control on ferry system
 - 7. Avoid excess capacity on ferry system
 - 8. Faster vessels
- *9. Better scheduling to Prince Rupert for arrivals and departures
- 10. Frequency of service increased
 - a. Winter-intra Southeast
 - b. Summer-Ketchikan/Hollis
- 11. New management of Alaska Ferry system, with recognition of the needs of the people and an awareness of the original concept of the ferry system

C. Land use recommendation listed as above

- ***** 1. Bridge to Gravina Island - Airport
 - a. Causeway and low-level bridge from Saxman to Pennock Island
 - b. High-level bridge from high point on Pennock Island to Gravina Island
- ** 2. Schoenbar Bypass
- 3. Roads on Gravina Island
- 4. Public access to recreational areas
- 5. Completion of Harriet Hunt-White River-Beaver Fall Highway
- 6. Road link study between Ketchikan and mainland highway (Unuk - Stewart)
- 7. Roads connecting Hydaburg and Kasaan to Prince of Wales Island road system

D. General recommendations presented

- ** 1. Port facility
 - a. Big crane needed
 - b. Docks to accomodate barges and cruise ships needed
 - * c. Small boat facilities, docks and open mooring for recreational use
 - d. Expanded harbors and maintenance facilities
 - e. Better seaplane floats
- * 2. Hovercraft
- 3. Hydrofoils
- 4. The addition of Sealand, Tote or another container service to Ketchikan
- 5. More responsive government agencies, especially State ferry system
- * 6. Development of Sunny Point Deep Water Marine Terminal and Industrial Complex

KLAWOCK

Priorities Emerging from
Preliminary Public Workshop

7-Participants



Southeastern Alaska Transportation Study

May 10, 1977

2:30 PM

A.N.B. Hall

Klawock, Alaska

Transportation Priorities Identified
in Klawock Public Workshop

May 10, 1977

- I. Modes of transportation currently available in community
 - A. Commercial airlines (Alaska Airlines scheduled by Tyee Airlines sub-contracted air-taxi)
 - B. Alaska Marine Highway System
 - C. Barge
 - D. Air-taxi services
 - E. Mail boats and seine boats
 - F. Land-based private vehicles and taxi
- II. Feelings considered relating to community transportation services
 - A. Air services evaluated
 - 1. Likes listed in approximate descending order of priority to workshop participants
 - ***a. Use in medical evacuations
 - **b. Frequency of flights
 - *c. Charter rates and seat fares comparatively low
 - d. Freight costs low
 - e. Use in search and rescue
 - 2. Dislikes listed as above
 - **a. Alaska Airlines retaining authority on routes not served
 - *b. Floats not accessible by vehicles
 - *c. Fares too high
 - *d. Freight costs too high
 - e. Through ticketing from outside not available except through Alaska Airlines sub-contractor
 - f. Alaska Airlines rates not consistent to bush communities

B. Services on water evaluated

1. Likes listed as above

** a. Costs reasonable on Alaska Outport Transportation Association "AOTA"

**

b. Costs low on ferry

2. Dislikes listed as above

*** a. Proposed ferry schedule inconvenient for buying in Ketchikan

* b. Service too infrequent

* c. Poor scheduling

* d. Dock facilities inadequate for unloading

e. Summer fare increases

f. Service not containerized

g. Loss of goods on AOTA

h. Mail boat arrival time

i. Unable to confirm cabin reservations on ferries

j. Answering service (recorder) at ferry terminals providing no information

C. Services on land evaluated

1. Roads liked as providing convenience of access

2. Dislikes listed in approximate descending order of priority to workshop participants

a. Poor roads

b. Access to other towns poor

c. Forest Service closing roads to recreation

d. Road maintenance inadequate

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

***1. Improve local airport

**2. Bigger airplanes in and out

*3. Floats providing unloading directly into vehicles

- * 4. Airplane float in downtown Ketchikan
 - 5. Larger airplane floats for added aircraft
 - 6. Public waiting and storage facility on floats
- B. Water service recommendations listed as above
- **1. Scheduling for ferry and mailboat improved
 - *2. Small boat harbor improved
 - *3. Improve docks and unloading facilities
 - *4. Operable reservation system for ferries
- C. Land service recommendations listed as above
- **1. Road maintenance improved
 - **2. Thorne Bay road upgraded and maintained
 - *3. Access to abandoned logging roads for recreation
 - *4. Scheduling Bus service between towns
 - 5. Better area roads

METLAKATLA

Priorities Emerging from
Preliminary Public Workshop

7-Participants



Southeastern Alaska Transportation Study

May 11, 1977

7:30 PM

Town Council Chambers
Metlakatla, Alaska

Transportation Priorities Identified
in Metlakatla Public Workshop

May 11, 1977

- I. Modes of transportation currently available in community
 - A. Air-taxi service and scheduled air service
 - B. Alaska Marine Highway System
 - C. Barge
 - D. Private boats
 - E. Land use vehicles
 - F. Ocean freighters carrying foreign cargo
- II. Feelings considered relating to community transportation services
 - A. Air-taxi services evaluated
 1. Likes listed in approximate descending order of priority to workshop participants
 - a. Faster
 - b. Convenience of service
 2. Dislikes listed as above
 - **a. No air-taxis locally based
 - *b. No service from airport to airport
 - *c. Float facilities in poor condition
 - *d. No waiting rooms
 - *e. No competitive service for Alaska Airlines
 - f. Medical evacuation capability poor
 - g. Poor regulation of Air-taxi service
 - h. Poor freight facilities
 - B. Ferry Service evaluated
 1. Likes listed as above

*****a. Beauty of scenery

***b. Inexpensive

2. Dislikes listed as above

*****a. Ketchikan lay-over time too short

*b. No notice of cancellation

*c. Scheduled runs not often enough (more days)

d. Capacity not great enough for passengers and vehicles

e. Seating on ferry poor

f. Ketchikan departure time not adhered to (leaves early)

C. Barge Service evaluated

1. Likes listed as above

a. Easy and direct access between Metlakatla and Seattle

2. Dislikes listed as above

a. (None listed)

D. Land use services evaluated

1. Likes listed as above

** a. Use for recreation

* b. Convenience

* c. Road system partially paved

d. Scenic drives

2. Dislikes listed as above

** a. No public transportation

** b. Roads poorly maintained within city limits

c. Lack of paved roads in Tamgas area on Point Davison

III. Recommended improvements in transportation services

A. Air transportation improvements listed in approximate descending order of priority to workshop participants

*****1. Locally-based aircraft on Annette Island

- ** 2. Competition in commercial service
- * 3. Jet service
- 4. Service desired airport to airport
- 5. Waiting facilities needed
- 6. Desire for direct air commuter services to Wrangell, Petersburg, Sitka and Juneau
- 7. Relocation of seaplane float

B. Water transportation improvements listed as above

- ***** 1. Daily ferry service based in Metlakatla
- * 2. Small boat harbor
- * 3. Waiting room facilities
- 4. Main line ferry service needed
- 5. Larger ferry with more capacity for passengers
- 6. More frequent freight service for perishables
- 7. Dock facilities enlarged

C. Land service improvements listed as above

- ***** 1. Public transportation system
- ** 2. Roads paved throughout town
- * 3. Road built to Walden Point or Annette Bay
- 4. Road paved to ferry terminal
- 5. Roads paved (Tamgas Harbor)
- 6. Use of school bus throughout town for public transportation
- 7. Roads paved to Point Davison

PELICAN

Priorities Emerging from
Preliminary Public Workshop

20-Participants



Southeastern Alaska Transportation Study

May 3, 1977

7:30 P.M.

Pelican High School

Pelican, Alaska

Transportation Priorities Identified
in Pelican Public Workshop

May 3, 1977

- I. Modes of transportation currently available in community
 - A. Eagle Air (scheduled flights)
 - B. Alaska Marine Highway System
 - C. Charter air carriers and private aircraft
 - D. Water-borne freight carriers
 1. Alaska Outport Transport Association (Klehowa)
(Scheduled freight service charter members only)
 2. Foss Alaska Barge (petroleum products)
 - E. Private boats
 1. Fishing vessels
 2. Pleasure craft
 - F. Coast Guard for medical emergency evacuations
- II. Feelings considered relating to community transportation services
 - A. Eagle Air (scheduled) and air taxis service evaluated
 1. Likes listed in approximate descending order of priority to workshop participants
 - * **** a. Speed and immediacy of service
 - *** b. Frequency of service
 - **** c. Cheaper to travel scheduled flights than charter
 - ** d. Availability for emergencies
 - *** e. Convenience
 - f. Thrilling
 - * g. Good looking pilots occasionally stormbound
 - h. Provider of employment
 - i. Choice of destination
 - j. Scenic

2. Dislikes listed as above

- ***** a. Expensive
- * b. Inability to handle bulk mail in a timely manner
- *** c. Unavailability of land plane service (no airstrip)
- d. Limited freight capacity
- e. Lack of reliability due to the weather
- f. Dangerous
- g. Mishandling of postal goods
- h. Waiting area exposed
- i. Fares increased without public hearing
- j. Uneducated computers of Alaska Airlines

B. Water services evaluated

1. Likes listed as above

- ***** a. Dependability
- *** b. Less expensive (cheaper than air)
- ** c. Tourists on Ferry
- * d. Ability to carry large or bulky items
- e. Scenery - Fun
- f. Facilitator of group travel
- g. Provider of employment

2. Dislikes listed as above

- ***** a. Alaska Output Transport Association limited to charter members only with no room for new members (Barge Carrier)
- ***** b. Can't shop on ferry without car or van, thus not serving residents without vehicles
- **** c. Tourists on ferry
- *** d. Lack of public dock facilities
- *** e. Ferry service not frequent enough (once/month prefer once/week)

- ** f. Travel time-slow
- g. Poor storage space
- h. Ferry service too frequent
- i. Damage to goods
- j. Difficult to unload private boats

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

- ***** 1. Airstrip
- **** 2. Daily passenger service early in the day all year around
- ***** 3. Cheaper fares
- ** 4. Winch to transport air freight up ramp
- * 5. Locally-stationed airplane
- * 6. Better float and waiting room (shelter on float)
- * 7. Public hearing before raising air fares
- 8. Daily mail and freight service (also for heavier and bulkier items)
- 9. Larger landing ramp with covered shelter for passengers and freight desired
- 10. Designated landing pad with freight storage for helicopters
- 11. Better coordination between airlines for schedules and freight

B. Ferry service recommendations listed in approximate descending order of priority to workshop participants

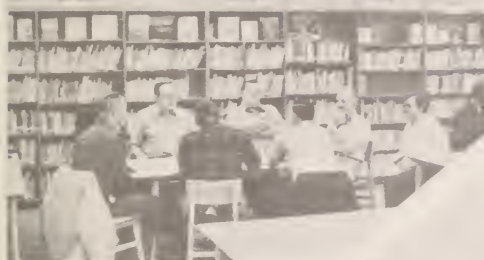
- ***** 1. Provision of transportation for individual freight items (without vehicle)
- **** 2. Emphasis on service to Southeast communities rather than tourist
- *** 3. Ferry service weekly
- * 4. Full-time agent in community
- * 5. Sleeping facilities on ferry
- * 6. Direct service to other Southeast communities besides Juneau and Hoonah requested

- * 7. Private freight service on ferry
 - 8. Dolphins at ferry terminal so barges can tie up recommended
 - 9. Avoidance of overbooking
 - 10. Longer stays in communities to allow passengers to have economic impact on community
 - 11. More frequent ferry service desired
- C. Recommendations pertaining to barge transportation presented as above
- **** 1. Public barge system
 - ** 2. Cheaper wharfage and freight handling
 - ** 3. Notification upon arrival of goods by PCS
 - 4. Better service in wharfage and handling
 - 5. Private freight service by boat or barge
 - 6. Dolphins at ferry terminal for barge tie up
- D. Recommendations pertaining to private boat transportation presented above
- 1. Better unloading facility for private and commercial boats
 - *** 2. Harbor dredged
 - ** 3. Bigger boat harbor
 - 4. Additional gridirons
 - 5. Small boat harbor on east side of jetty
 - 6. Improvement of upper ramp
- E. Recommendations for land use listed as above
- * 1. Road between Hoonah, Tenakee and Pelican
 - 2. No roads at all desired
 - 3. Access road to suburban property
 - 4. Use of dredge material for streets and land recovery
 - 5. No road to Hoonah or Sunnyside

PETERSBURG

Participants Emerging from
Preliminary Youth Workshop

19-Participants



Southeastern Alaska Franchisement Study

May 3, 1977

7:30 PM

Elementary School Library
Petersburg, Alaska



Transportation Priorities Identified
in Petersburg Public Workshop

May 3, 1977

- I. Modes of transportation currently available in community
 - A. Alaska Airlines
 - B. Alaska Marine Highway System
 - C. Local aviation firms and privately owned air craft, including air taxis and helicopters
 1. Alaska Island Air
 2. Stikine Air
 3. (helicopters) TEMSCO
 - D. Freight Carriers
 1. Foss Alaska
 2. Lynden Transport
 - E. Charter Boats
 - F. Private Planes and Boats
 - G. Oil Barges
- II. Feelings considered relating to community transportation services
 - A. Alaska Airline services evaluated
 1. Likes listed in approximate descending order of priority to participants
 - *** a. Provision of emergency services
 - ** b. Speed
 - * c. Consistency of service
 - * d. Reliability of service
 - * e. Daily service
 - ** f. Safety
 - ** g. Still in business
 - h. Courtesy of services
 - i. Special services

2. Dislikes listed in approximate descending order of priority to participants

- ** a. Handling of baggage poor
- ** b. High cost of stopover in Wrangell and Petersburg
 - c. Noise
 - d. Weather disruptions
 - e. Terminal crowded often
 - f. Representative of monopoly
- * g. Service not frequent enough
 - h. Cost high
 - i. Ground time

B. Alaska Marine Highway services evaluated

1. Likes listed as above

- ***** a. Appreciation that it is available
- *** b. Service as backup to other transportation modes
 - * c. Dependability of service
 - * d. Inexpensive
 - e. Atmosphere relaxing and scenic
 - f. Safety of service
 - * g. Convenience
 - i. Chance for social contacts
 - j. Food
 - k. Can take vehicles and freight

2. Dislikes listed as above

- ***** a. Priority for Alaskans
 - *** b. Reservation system inadequate
 - ** c. Desire for more availability to Alaskans versus tourist and business interests
 - ** d. Appearance that personnel are drinking-snotty

- e. Difficulties in loading and unloading vessels
 - f. No walk-on freight facilities
 - g. Restrooms lacking cleanliness
 - h. Food
 - * i. Winter schedule
 - j. Scheduling
 - k. Frequency
 - * l. No recreation room for children
 - m. No reading area
 - n. Uncomfortable furniture
 - * o. Having to buy two bunks for one person
 - ** p. Foul-ups "with bunk rentals"
 - q. Being nice to senior citizens in winter (Ha!)
- C. Alaska Island air and other air taxi services evaluated
- 1. Likes listed as above
 - ** a. Fine service (Alaska Island Air)
 - ** b. Versatility of use
 - ** c. Availability
 - * d. Safety, depending on weather and type of aircraft
 - e. Specialized uses in emergencies and for scenic pleasure
 - 2. Dislikes listed as above
 - * a. More expensive
 - b. Limitations in freight
 - c. Condition of landing sites
- D. State highway system evaluated
- 1. Likes listed as above
 - a. Well maintained
 - b. Lack of destination

2. Dislikes listed as above

- a. Lack of destination
- b. Poor planning
- c. Original construction poor
- d. Safety

E. Freight carriers evaluated (Foss Alaska, Lynden & Billiken)

1. Likes listed as above

- * a. Capacity
- b. Hauls bulk freight
- c. Reliability and frequency of service

2. Dislikes listed as above

- * a. Expensive for small items
- b. Lack of adequate personnel to pick up items
- c. Takes time
- d. Damage to commodities occurring
- e. No free delivery

F. Charter boats, private boats, and small boat facilities evaluated

1. Likes listed as above

- * a. Adaptability to country and geography of Southeast Alaska
- b. Flexibility of destination and personalized service

2. Dislikes listed as above

- a. Too expensive
- ** b. No public loading facilities or docking facilities
- c. Channel not deep enough

**** G. Airport navigational aids-need Instrument Landing System "ILS"

III. Recommended improvements in transportation services

A. General recommendations presented

- ****1. Study of hydrofoil and havercraft shuttle service
- *****2. Better weather-reporting station
 - 3. Railroad service to outside
 - *4. Better news reporting by satellite or mountaintop repeater
 - *5. Tour ship dock construction
 - 6. State subsidy to private transportation companies
- B. Air service improvements recommendations listed in approximate descending order of priority to workshop participants
 - ***** 1. Better landing strip and technical services such as electronic navigational aids-priority Instrument Landing System "ILS" for Petersburg airport
 - ** 2. Greater frequency in airline service
 - ** 3. Lower air freight rates
 - 4. Larger airport terminal facilities
- C. Ferry service recommendations listed as above
 - ***** 1. Additional ferries providing greater availability to Alaskans
 - ***** 2. Better administration of ferry system
 - * 3. More stateroom space on ferries
 - 4. Private ferry service between Wrangell and Petersburg
 - *** 5. Increased frequency of ferry service
 - ** 6. Alternating night and daytime departures
- D. Road service recommendations listed as above
 - *** 1. Bridge and road up Stikine to promote mining and tourism, but noted as costly and influential in producing changes to life style of the area
 - *** 2. Petersburg-Kake Road, dissenting view noted based on duplication of services
 - ** 3. Completion of road around Mitkof Island
 - * 4. Bridge to Kupreanof Island
 - * 5. Highways where possible
- E. Barge service
 - 1. Increased frequency of service

SKAGWAY

Priorities Emerging from
Preliminary Public Workshop

9-Participants



Southeastern Alaska Transportation Study

May 12, 1977

7:30 PM

City School Multi-Purpose Room
Skagway, Alaska



Transportation Priorities Identified
in Skagway Public Workshop
May 12, 1977

- I. Modes of transportation currently available in community
 - A. Air Taxi
 - 1. Skagway Air Service
 - 2. L.A.B. (mail)
 - 3. Southeast Skyways (scheduled carrier)
 - B. Alaska Marine Highway System
 - C. White Pass ships and trains
 - D. Common Carriers
 - 1. Lynden Transport
 - 2. Fairway Fast Freight
 - 3. Foss Alaska Lines
- II. Feelings considered relating to community transportation services
 - A. Scheduled air services evaluated (Southeast Skyways)
 - 1. Likes listed in approximate descending order of priority to workshop participants
 - ** a. Scheduled Air Service
 - 2. Dislikes listed as above
 - * a. Pull-out of Alaska Airlines by state sanction
 - * b. Lack of the thru-rate or routing
 - * c. Scheduled carrier does not fly unless there are three passengers
 - d. Single engine planes (lack of room)
 - e. Mail and passenger service split between two carriers
 - f. Capacity to carry cargo limited
 - g. Poor appearance of pilots
 - h. Carelessness in handling baggage

B. Air Taxi Services evaluated

1. Likes listed as above

- *** a. Accomodating
- * b. Dependable
- c. Can leave anytime

2. Dislikes listed as above

- a. Single-engine aircraft

C. Ferry services evaluated

1. Likes listed as above

- **** a. Has risen to community emergencies
- * b. Reliability for winter service (generally)
- c. Courtesy of crew members
- d. Comfort

2. Dislikes listed as above

- ***** a. No preference for Alaska resident needs
- *** b. Scheduling
- ** c. Lack of local reservation facilities in Skagway
- d. Rate increase in summer
- e. Political overtones
- f. No conveyor to handle baggage
- g. Lack of elevator for elderly
- h. Permission required to board disabled by vehicle
- i. Senior citizens' fare exemption inapplicable to summer travel
- j. Inability to handle certain merchandise due to Coast Guard material regulations

D. White Pass services evaluated

1. Likes listed as above

- *** a. Provision for special service in emergencies

- * b. Provision of employee and family passes
- c. Dependability of service
- d. Accommodating
- e. Scheduling of ships good
- f. Will stop along route for Skagway citizens
- 2. Dislikes listed as above
 - a. Train trip to Whitehorse too long
 - b. Coaches on trains cold
 - c. Arrivals and departures late
 - d. Poor connections with tour ships
 - e. Meals deteriorating at Lake Bennett
 - f. Scheduling changes without notifying passengers
 - g. Skagway residents not allowed to disembark at shops
 - h. Lack of commentary about trip
 - i. Employees aloof and sometimes discourteous
- E. Freight services evaluated
 - * 1. Liked because of improvements in service in past ten years
 - 2. Dislikes listed in approximate descending order of priority to workshop participants
 - *** a. Costs too high
 - b. Clearing not done locally (Lynden Transfer)
 - c. Limited thru-van service (Lynden Transfer)
 - d. Limit weight-categories per weight basis (Lynden and Foss)
 - e. Loading of vans poorly supervised, resulting in careless loading (Foss)

III. Recommended improvements in transportation services

- A. Air service recommendations listed in approximate descending order of priority to workshop participants
 - *** 1. Improvements in thru-rates and routing by airlines

2. Need for new airport
3. More hearings on air transportation
4. Alaska Airlines toll free number for Skagway
5. Better regulation of scheduled airlines
6. Use of two-engine planes by air-taxis

B. Ferry service recommendations listed as above

***** 1. Preference to Alaskans for both passenger and cargo service

** 2. Local reservation policy

3. Scheduling more dependable

C. Road service recommendations listed as above

***** 1. Road to Whitehorse kept open all year

*** 2. Road from Juneau to Skagway built on EAST side of canal

3. Existing road to Dyea improved

4. Paving of new road to Whitehorse

D. Train service recommendations listed as above

1. Connections with tour ships established

2. Travel time reduced between Skagway and Whitehorse

E. General recommendations listed as above

***** 1. Investigation of Freight Rates (30% attributed to ferry plus additional 10% attributed to poor scheduling)

* 2. Reduce or eliminate custom clearance charge after 5:00 P.M. (currently very costly)



SITKA

Priorities Emerging from
Preliminary Public Workshop

9-Participants



Southeastern Alaska Transportation Study

May 4, 1977

7:30 P.M.

Centennial Building Auditorium
Sitka, Alaska

Transportation Priorities Identified
in Sitka Public Workshop
May 4, 1977

- I. Modes of transportation currently available in community
 - A. Alaska Airlines
 - B. Alaska Marine Highway System
 - C. Privately-owned and company aircraft
 - D. Air Taxi
 - 1. Eagle Air
 - 2. Channel Flying
 - D. Water-borne freight carriers
 - 1. Foss-Alaska Lines
 - 2. Lynden Transport (via ferry)
 - E. Transfer Companies
 - 1. Arrowhead Transfer
 - 2. Service Transfer
 - F. Motorized road vehicles
 - G. Private boats and charter boats
 - H. Specialized cargo boats and road vehicles
 - 1. ALP chip barges (Samson Tug and Barge)
 - 2. Oil barges
 - 3. Prewitt Enterprises' tour buses
 - 4. School buses
- II. Feelings considered relating to community transportation services
 - A. Alaska Airline services evaluated
 - 1. Likes listed in approximate descending order of priority to workshop participants
 - **a. Personnel
 - **b. Jets

2. Dislikes listed in approximate descending order of priority to workshop participants
 - *a. Scheduling inconvenient
 - *b. Service poorer within Southeast than to Outside
 - c. Rates expensive
- B. Ferry service evaluated
1. Likes listed as above
 - ****a. Existence appreciated most
 - b. Cheap method of travel
 - c. Ability to transport vehicles
 - d. Convenient
 - e. Personnel
 2. Dislikes listed as above
 - *****a. Consistent cancellation of ferry to Sitka causing non-availability
 - ****b. Original concept of marine highway lost
 - *c. Lack of available staterooms for Alaskans
 - d. Lack of responsibility
 - e. Service in restaurant
 - f. Competition with commercial goods carriers
 - g. Lack of staterooms on shuttle ferry
- C. Air Taxi services evaluated
1. Likes listed as above
 - *a. Professionalism of personnel
 - b. Service to public
 - c. Promoter of tourism
 - *d. Convenience and availability of service
 - e. Communications
 2. Dislikes listed as above
 - a. Thoughtlessness to tourists present

- b. Location of seaplane floats
- D. Water-borne freight carriers evaluated-barge
 - 1. Likes listed as above
 - a. Existence
 - 2. Dislikes listed as above
 - a. Rates high
 - b. Safety (charter barge)
- E. Transfer companies' services evaluated
 - 1. Likes listed as above
 - a. Competition
 - 2. Dislikes listed as above
 - a. Too expensive
 - *b. Government regulations too numerous
- F. Motorized road vehicle transportation services evaluated
 - 1. Likes listed as above
 - **a. Few roads
 - b. Parking free
 - 2. Dislikes listed as above
 - **a. Number of cars per capita too great, overloading road systems
 - **b. Expense too high to maintain vehicles (junkers)
- G. Private boats and charter boats evaluated
 - 1. Likes listed as above
 - a. Use in recreation
 - b. Use for commercial purposes
 - c. Use in transportation
 - d. Effective use of recreation as a business
 - *2. Only dislike listed as lack of moorage availability
- H. Specialized road vehicle services evaluated

1. Tour buses liked for providing transportation and promoting tourism
- *2. Tour buses disliked for poor parking habits

III. Recommended improvements in transportation services

- A. Recommendations pertaining to sea use transportation presented in approximate descending order of priority to workshop participants

- ****1. More scheduled ferries
- *2. Large docking facilities for freighters and tour ships
3. More government subsidies
4. More navigational aids
5. Another small boat harbor
6. Equality of service to other Southeast
7. Sea connection to Westward
8. More local input in transportation planning

- B. Recommendations pertaining to land use transportation listed as above

- *****1. More roads all around island (Green Lake)
- *2. More access to recreational areas needed
- **3. Parallel route to Halibut Point Road
- *4. Cluster parking lots requested
5. Parking areas for commercial and recreational vehicles
6. More local input in transportation planning
7. Use of funds for something besides public hearings
8. More government subsidy

- C. Recommendations pertaining to air use transportation listed as above

- **1. More local input in transportation planning
- ***2. Better intra-Southeast connections
- *3. Another major airline service
- *4. Improved airports
- *5. More navigational aids

6. Float plane facilities
7. More available aviation fuel
8. Need foreign air traffic
9. More government subsidy



WRANGELL
Priorities Emerging from
Preliminary Public Workshop

21 - Participants



Southeastern Alaska Transportation Study

May 4, 1977

7:30 P.M.

City Council Chambers

80%

Transportation Priorities Identified
In Wrangell Public Workshop

May 4, 1977

I. Modes of transportation currently available in community

- A. Alaska Airlines
- B. Alaska Marine Highway System
- C. Charter plane lines (Stikine Air and those based in other towns)
- D. Barges
 - 1. Foss Alaska Line scheduled runs
 - 2. Boyer Towing
 - 3. Campbell Towing
 - 4. Samson Tug and Barge
- E. Wrangell Transportation
- F. Lynden Transfer
- G. Lloyd Harding (salvage)
- H. TEMSCO (helicopter)
- I. Island Trader (small marine freighter)

II. Feelings considered relating to community transportation services

- A. Alaska Airline services evaluated
 - 1. Likes listed in approximate descending order of priority to participants
 - *****a. Availability of space
 - ****b. Convenience - no need to change planes going South by jet
 - *c. Comfort
 - *d. Fast service to lower States and south for the sick
 - e. Excellent counter service with computers
 - f. Freight capacity
 - g. Jet service

- h. Better thru service for baggage
- 2. Dislikes listed in approximate descending order of priority to participants
 - *****a. Bad connections north and past Seattle
 - ***b. Bad connections between Wrangell and Sitka
 - ***c. Frequency (limited) of service
 - **d. No extra sections when traffic heavy
 - *e. Fares too high
 - f. Air mail service poor
 - g. Too many frills
- B. Alaska Marine Highway Services Evaluated
 - 1. Likes listed as above
 - ****a. Dependable - Glad we have it
 - **b. Capability of good scheduling
 - **c. Local terminal operator
 - d. Equipment good
 - e. Good transportation in foul weather
 - f. Comfort good
 - g. Reliability good
 - 2. Dislikes listed as above
 - *****a. Scheduling poor in winter
 - ***
 - ****b. Lack of responsiveness to Alaskan needs
 - ****c. Freight split up among too many handlers
 - **d. Costs too high for Southeasterners to travel and ship goods
 - *1. Minimum charge too high for small shipments
 - *2. Tariff charged to Southeasterners to use highways while other States not charged
 - **e. Lack of accountability
 - *f. Service to Sitka poor

- *g. Lack of space in summer
- *h. Rates too high
 - i. Emphasis too great on tourist trade
 - j. Backhaul limited
 - k. Built for tourists
- C. Stikine Air and charter plane services from other towns evaluated together
 - 1. Likes listed as above
 - *****a. Dependable and convenient availability in emergencies -
 - b. Service to outlying areas fast and reliable
 - *c. Flexibility of equipment allowing landing on ground and water
 - d. Foul weather transportation
 - 2. Dislikes listed as above
 - a. Cost high
 - b. Freight capacity limited
 - c. Noise level high
- D. Transportation by barge evaluated
 - 1. Likes listed as above
 - *a. Ability to haul flammable items
 - b. Flexibility
 - c. Cost relatively lower than plane or ferry
 - d. Dependability important
 - e. Equipment good
 - 2. Dislikes listed as high costs, including excessive minimum charge
 - 3. Boyer liked for lower rates and dependability but criticized for no schedule, limited equipment, bulk use and insurance.
 - **Foss Alaska liked for dependability and the provision of scheduled service but criticized for high rates and high minimum charge
- E. Lynden and Wrangell transport considered dependable with frequent service, but costly

F. Temsco only helicopter service

III. Recommended improvements in transportation services

A. General recommendations presented

- *****1. Need for all-weather long range medical evacuation plane for region
- *2. Railroad connections and/or rail barge service to mainland
- 3. Hydrofoil service to other communities
- 4. River barge service on Stikine

B. Recommendations pertaining to a road connections listed in approximate descending order of priority to workshop participants

- *****1. Road connection with mainland (providing road-ferry connection)
- *****2. Need for highway system up Aaron Creek to Canada (mainland connection specific route)
- *****3. Need for access road to Canada, via Blake Channel Narrows and Stikine Valley (mainland connection specific route)
- **4. Need for highway from Sitka to Warm Springs Bay to improve ferry service

C. Recommendations to improve air service listed as above

- ***1. More frequent scheduling
- *****2. Shuttle service recommended between Wrangell and Petersburg suggested air and marine i.e. hydrofoil
- 3. Student rates recommended for approved school functions when space available
- 4. Frills and fares recommended cut on Alaska Airlines
- 5. Routing to Midwest recommended

D. Recommendations to improve ferry transportation listed as above

- ****1. Seattle kept as terminal point
- **2. No more changes in food handling system
- **3. Wrangell suggested as focal point for ferry and road connections (see road recommendations)
- *4. Better group rates during off seasons
- ***5. Ferries run for service rather than profit

- ***6. Winter service increased (Malaspina & Columbia terminate at Seattle)
- **7. Inter-Southeast service improved (responsive to needs of Alaskans)
- 8. Extension in routing for small ferries
- E. Review of marine tariff rates throughout Alaska by Federal regulatory agencies



YAKUTAT

Priorities Emerging from
Preliminary Public Workshop

11-Participants



Southeastern Alaska Transportation Study

May 5, 1977
8:00 P.M.
City Hall
Yakutat Alaska

60

Transportation Priorities Identified
in Yakutat Public Workshop
May 5, 1977

- I. Modes of transportation currently available in community
 - A. Scheduled Alaska Airlines flights
 - B. Western Pioneer (ocean freighter)
 - C. Air taxi and helicopter service
 1. Gulf Air Taxi
 2. Livingston Helicopter
 - D. Guide services by air and boats
 - E. Road system transportation
 - F. Alaska Marine Highway System (once a year - on request)
- II. Feelings considered relating to community transportation services
 - A. Alaska Airlines' services evaluated
 1. Likes listed in approximate descending order of priority to workshop participants
 - ****a. Service regularly scheduled
 - ***b. Terminal facilities improved
 - *c. Quality of service
 2. Dislikes listed as above
 - **a. Late night flights with poor connections
 - *b. Summer schedule providing inadequate service by cutting two flights weekly
 - *c. Lack of competition
 - *d. No stopover rate in Yakutat
 - e. Loss of baggage
 - f. Need for more freight space
 - g. More flights needed to Sitka from Juneau, for hospital patients in particular
 - B. Western Pioneer Services evaluated

***1. Liked for providing service to Yakutat

2. Dislikes listed as above

***a. Freight rates disproportionate

*b. Lack of good insurance (possibly no insurance)

*c. Lack of regularly scheduled service

d. Difficulty in getting things on board

e. No local agent

C. Ferry services evaluated

*1. Liked for having responded on request in transit between Western system and Seattle for annual vessel overhaul.

2. Dislikes listed as above

**a. Not available for use in Yakutat

**b. Service only once a year to Yakutat

c. Need for two or three month advance reservations

d. Juneau departure times at odd hours or late at night

e. Poor transportation to town from Auke Bay terminal

D. Gulf Air Taxi services evaluated

*1. Liked as a certified carrier providing the advantage of alternative transportation

2. Disliked for difficulty in contacting at times

E. Livingston Helicopters liked for good friendly service and ease in contacting

III. Recommended improvements in transportation services

A. Air service recommendations listed in approximate descending order of priority to workshop participants

**1. Western Airlines alternating with Alaska Airlines

*2. Alaska Airlines - better connecting schedule

B. Water service recommendations listed as above

*****1. Expansion of ferry system to serve Yakutat to Seward and to Juneau or Haines on scheduled basis

*****2. Improvements in water freight service

3. Active evaluation of freight structure by Federal Maritime Commission

4. Ferry hookup even once or twice a year

C. Land service recommendations listed as above

***1. Need for natural gas route (spur from Yakutat to Alcan route)

***2. Shoulders on the roads

3. Expansion of the forest highway system to Haines

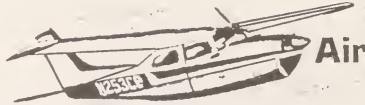
4. Safer approaches at road intersections



SOUTHEASTERN ALASKA TRANSPORTATION STUDY

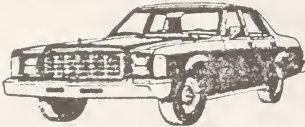
Second Series of Public Workshop

Summary
and
Record



Air

LAND



WATER



State of Alaska
Department of Transportation and Public Facilities
Southeastern Region

Note: Special thanks is extended to those who took the time to become part of the study team by attending the public workshops. While we recognize that the views expressed by workshop participants are not necessarily those of their particular community, individual input has, and will continue to have significant influence on the direction of the Southeastern Alaska Transportation Study. The Department also extends special thanks to those few who submitted written letters.

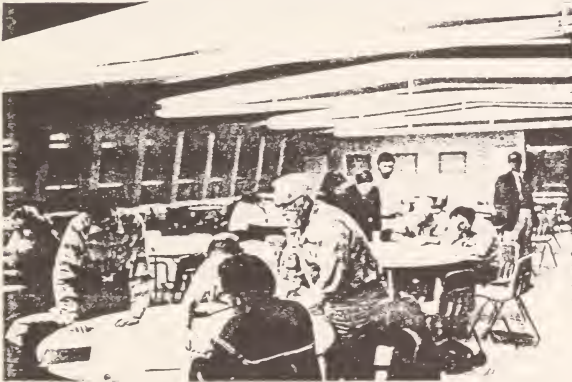
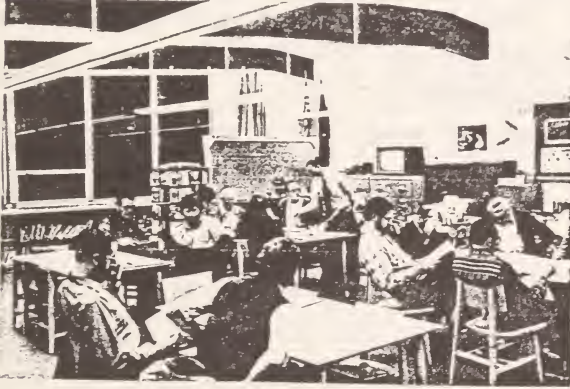


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I. Summary

Introduction

The Southeastern Alaska Transportation Study was developed in response to community concerns for integrated and better air, land and water transportation systems planning for Southeastern Alaska. The Study has three principal objectives: 1) to develop a continuing transportation planning process for the orderly development of air, land and water transportation improvements; 2) to develop a long range and integrated air, land and water transportation systems plan; and 3) to develop a flexible implementation strategy for accomplishing the long range plan within identified funding and construction resource limits.

The Study Team is composed of three equally important groups; 1) the people of Southeastern Alaska, who suggest which systems to study; 2) the consultant group headed by Wilbur Smith and Associates who assemble and analyzes the data to develop information for each suggested system improvement; and 3) the State Department of Transportation and Public Facilities which is responsible for presenting the information to the public; evaluating analytic information and public response; and for reaching a decision on a transportation plan.

Last May the Study Team conducted seventeen public workshops throughout Southeastern Alaska. The people of each community were asked to; 1) identify the current transportation services between their community and neighboring communities; 2) to identify what they liked and disliked about their transportation services; and 3) to recommend improvements that they would like to see considered by the study.

A "Preliminary Transportation Assessment" was developed by Wilbur Smith and Associates on 41 transportation options of an inter-community nature suggested for the study by workshop participants. This document presents an assessment of costs, benefits and adverse impacts which can be anticipated by implementation of each of the various transportation options.

A second series of public workshops were conducted during the last two weeks of October and early November. The Preliminary Transportation Assessment was presented at nineteen public workshops attended by 400 people. Persons attending the second series of workshops were asked; 1) to identify which transportation options they wanted studied further; 2) to identify which evaluation parameters they found most useful in comparing transportation options; and 3) to list transportation "Goals and Objectives" important to them individually. Workshop participants were invited to write in their preferences including negative preferences such as "No Highways".

Severe weather conditions caused many of the workshops to be rescheduled. A power outage made it necessary to reschedule the Hydaburg Workshop for the third time to daylight hours. People attending the workshops liked the opportunity to express their ideas and influence the transportation planning process. Workshop evaluations received from participants indicated a positive feeling towards their role in the Southeastern Alaska Transportation Study.

In addition, the "Preliminary Transportation Assessment" was mailed to several hundred individuals, institutions and local, State and Federal Government agencies for comment and criticism.

The following is a summary of workshop participants response to the transportation options and the evaluation parameters used to compare them. Also, attached are copies of correspondence received in response to the "Preliminary Transportation Assessment". The Study Team recognizes that the feelings of workshop participants may or may not represent the views of their community; however, public direction received at workshops has, and will continue to influence the direction of the study. The transportation alternatives under study consideration are responsive to the feelings expressed by the participants and the comments received in correspondence.

Summary of Transportation Options

Workshop participants were asked to review, discuss and prioritize the list of Transportation Options being considered by the study. Participants were invited to add transportation options not previously considered.

Major highway corridors receiving the most interest at the majority of workshops were the Stikine-Iskut River Valley and the Lynn Canal corridor. The Unuk River Vally corridor also received a significant amount of interest particularly from residents of Prince of Wales Island, Hyder and Metlakatla. A Stikine highway connection to both Petersburg and Wrangell providing access to the Cassier Highway in British Columbia Canada received the greatest interest followed by a road connection between Juneau and Skagway along the east side of the Lynn Canal. Suprisingly, workshop participants throughout the region, except in Ketchikan, expressed a strong interest in considering a bridge from Ketchikan to the Airport. Ketchikan participants were cool towards this option. There was wide interest expressed in relocating the ferry terminal in Sitka to avoid the narrows by constructing a road to either Rodman Bay or Warm Springs Bay. Kake, Petersburg and Wrangell expressed a high interest in a road connection between Kake and Petersburg.

For marine transportation, workshop participants overwhelmingly indicated a desire for more ferries. The Seattle ferry terminus was preferred over Bellingham. Participants at several workshops preferred terminating ferry service at Prince Rupert. Workshop participants also felt that the Sitka Shuttle ferry was needed, and that more feeder ferries are needed for the small communities.

Considerable interest was expressed in surface skimmers (hydrofoils, air cushion vehicles and surface effect vessels) and more barge service.

Considering air transportation facilities, workshop participants expressed a high degree of interest in the development of more airstrips. The installation of air nav aids and more development of air float facilities was also favored very strongly.

Summary of Evaluation Parameters

Workshop participants were asked to rate the evaluation parameters most important to them. On the basis of their prioritization of the evaluation parameters, the study team was able to gain some understanding of the transportation characteristics and impacts considered important by the people of Southeastern Alaska.

For evaluation parameters listed under level of service, "Service Frequency" was identified as the most meaningful to workshop participants. "Quality of Service" and "Service at desired times" were ranked next.

Under land use the evaluation parameter most important to participants was "land made available for better use". "Land needed by transportation improvements" was identified as the next most important evaluation parameter.

For economic parameters "impact on employment" received the strongest rating by participants. "Total operating costs" and "total capital costs" were next and received approximately equal rating as the evaluation parameter most important to workshop participants. "Industrial resource development" also rated high among workshop participants.

The transportation evaluation parameter identified as most important to participants was "logical route/service structure". "Flexibility to adapt schedules" was identified as the next most meaningful parameter followed by "efficient use of equipment".

Under social evaluation parameters "disturbance to hunting and fishing" was identified as important to participants. "Changes in community character" and "changes in community isolation" both ranked next as the most preferred parameters.

The environmental evaluation parameter identified as most important was "impact on fish". "Impact on roadless areas" was ranked next followed by "change in fuel consumed". Workshop participants also ranked "impact on plants and wildlife" and "visual appearance" highly.

Summary of Transportation Goals and Objectives

Workshop participants were asked to brainstorm and come up with a list of transportation goals and objectives important to them. Participants were then asked to identify the goals and objectives most important to them by placement of dots. On the basis of the goals and objectives that received the most dots, the study team was able to generally identify which ones were most important to each group.

A summary, on a regional basis, of the transportation goals and objectives brainstormed by workshop participants reveals that the Marine Highway System was listed as the most important. Participants from Sitka, Angoon, Metlakatla, Haines, Kake, Skagway, Tenakee Springs, Juneau, Thorne Bay, Petersburg, Wrangell, and Pelican indicated that all around improvements for the entire ferry system were needed. They wanted better scheduling, all year reliability, improved frequency, improved service and lower rates. Participants from Hyder, Yakutat and Thorne Bay wanted ferry service instituted to their community.

Increased frequency of all transportation modes rated highly with residents of Southeastern Alaska. Participants from Pelican, Yakutat, Kake, Hydaburg, Wrangell, Haines, Ketchikan, Tenakee Springs, and Thorne Bay listed this as a very important transportation goal and objective.

Freight service was listed as important to participants of Wrangell, Thorne Bay, Tenakee Springs, Kake, Pelican and Hyder. This included lower freight rates and more frequent delivery service.

Participants at workshops held in Klawock, Craig, Wrangell, Sitka, Petersburg, Kake, Thorne Bay, Hydaburg and Juneau indicated that reliability was very important to them as a transportation goal and objective.

Economic improvement was considered important by workshop participants from Sitka, Yakutat, Wrangell, Petersburg, Klawock, and Skagway. Specifically, participants of Wrangell and Skagway wanted to promote tourism while Yakutat and Klawock participants wanted the cost of living decreased.

Workshop participants also indicated that the quality of lifestyle in Southeastern Alaska, minimum impact on the environment, improved mail service, better emergency medical service, better barge service, and all around cheaper transportation costs were important transportation goals and objectives.

II. Matrix Summary of Individual Workshops

The matrices on the following pages present by community workshop the responses of participants to the transportation options and the evaluation parameters used to compare them. Workshop participants were asked to review and discuss forty one transportation options previously recommended for study. Participants were invited to write in additional transportation options which they felt were missing and should receive consideration. This included negative options such as "No highways" etc. The transportation options were grouped into four categories by estimated cost to implement them; 1) projects less than \$10 million; 2) between 10 and 50 million; 3) between 50 and 100 million; and 4) over 100 million. Participants were then asked to prioritize the options to indicate which options they would like to receive further study and evaluation. Participants were given eight self-adhesive dots and instructed to apply two per category. They could place both dots on a single option which they felt strongly about, or they were free to place them on separate options. They did not have to use their dots if they did not feel they had any priority. A summary of participants response is presented for this task in the matrices titled "Regional Priorities Including Local Area". The numbers in the matrices represents the number of dots placed in front of each respective transportation option by the participants of each community workshop.

A person should be careful when trying to draw conclusions from the numbers presented in the matrices. We have presented the totals because we know people will add the columns up, but you should note that the totals can be strongly influenced by priorities and views of workshops with a large number of participants. The priorities indicated are also affected by the categorization and wording. Most important, we recognize that the participants attending a workshop may or may not hold and present the views and priorities of the entire community. However, the participants of the workshops and those who express themselves by writing letters have, and will, influence the direction of the study. Those who do not participate, can not. Our objective is to find out what improvements people desire and what concerns they have about transportation improvements.

Following the above exercise, eight more dots of a different color were distributed to participants. They were asked to repeat the first task, but not to place any dots on transportation options which improved service to their own community. The purpose of this restriction was to force participants to prioritize transportation improvements throughout the region. A summary of this task is presented in the matrices titled "Regional Priorities Excluding Local Area".

We also total the response of both of the above exercises and presented the results in the matrices titled "Total Priorities".

Participants were presented with a list of seventy one evaluation parameters. They were asked to review and discuss the list within their group. Each participant then received eighteen dots. They were instructed to apply no more than three dots to each of the six categories. They could place all three dots on a single parameter within a category, or distribute the dots around within a category. The results of their response are presented in the matrices titled "Evaluation Parameters".

The last task participants were asked to perform was to brainstorm a list of transportation goals and objectives important to them in assessing transportation alternatives. The terms goals and objectives were used loosely in this exercise. The results of this exercise are listed by community along with any write-in (additions) transportation options and evaluation parameters suggested by participants. This information is presented in the community workshop record following the matrices.

Regional Priorit
Including LocalTRANSPORTATION PROJECTS
LESS THAN 10 MILLION DOLLARS

10

	SEATTLE FERRY TERMINUS	BELLINGHAM FERRY TERMINUS	PRINCE RUPERT FERRY TERMINUS	HYDABURG FERRY	YAKUTAI FERRY	METLAKATLA MAINLINE FERRY	CHICHAGO IS. FERRY	HYDER FERRY	WRG/PSG FERRY	JUNEAU CITY FERRY TERMINAL	AUKE BAY FERRY TERMINAL	EXPAND BARGE SERVICE	CENTRALIZED BARGE SERVICE	DEVELOP AIR FLOAT FACILITIES	INSTALL AIR NAVAIDS	
ANGOON																
CRAIG													11		5	
HAINES		1	2		2	2				8	6	6	2	4	15	
HOONAH				2	2					3	7				1	
HYUNBURG		3										7		4		
HYDER	2	6	5	2	3	2				1		2				
JUNEAU	4		5	2	6		1	3	2	12	3	5	1	10	10	
KAKE	8	6										1	5	1	9	
KETCHIKAN	6	5	5		4			3				2	4	3	12	
KLAMOCK														4	4	
METLAKATLA	6	5		1	2	32				1		5		13	8	
PELICAN		4										17		9		
PETERSBURG	8	5	4		1				3			4	2	8	16	
SITKA	11	3					1				1	14		8	6	
SKAGWAY	2		13		2							20		4	16	
TENAKEE SPRINGS	3			1	3		9	4		1		3	9	2	7	
THORNE BAY	2	6	2										3	2	3	
WRANGELL	10		1				1	1	10	2		2	2	2	4	
YAKUTAI					26							19		5		
TOTAL	62	40	36	8	51	38	12	11	15	28	17	105	39	70	116	

TRANSPORTATION PROJECTS LESS THAN 10 MILLION DOLLARS

Regional Priorities
Excluding Local Area

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	SEATTLE FERRY TERMINUS	BELLINGHAM FERRY TERMINUS	PRINCE RUPERT FERRY TERMINUS	HYDABURG FERRY	YAKUTAT FERRY	METLAKATLA MAINLINE FERRY	CHICAGO OF IS. FERRY	HYDER FERRY	MRG/PSG FERRY	JUNEAU CITY FERRY	AUKE BAY FERRY TERMINAL	EXPAND BARGE SERVICE	CENTRALIZE BARGE SERVICE	DEVELOP AIR FLOAT FACILITIES	INSTALL AIR NAVAIDS		
ANGOON	12									1	1	10					
CRAIG	1					1						6		7			
HAINES	1	2	6						1	5		13		1	10		
HOONAH		2		1	1					2	2			2	11		
HYDABURG		2		8										4			
HYDER	1	3	2	1				46						13	10		
JUNEAU	6	4	5	2	5	1		4	2		1	2	6	7	11		
KAKE	7	10	1	1													
KETCHIKAN	11	2	6		2		3		1	2		4	6	4	10		
KLANOCK				1								3		3	1		
METLAKATLA	10	1	1	3	6	1		1		1		5	7	7	10		
PELICAN	11				1		4					12		4	11		
PETERSBURG	4	1	1		2		3			6		8	1	6	7		
SITKA	10	3	1		1						4	7		7	5		
SKAGWAY	2	2	9	1	2		1	1	2	5	6	11	1	7	11		
TENAKEE SPRINGS	4				2		2	5		4		3	3	5	12		
THORNE BAY	2	3	9									2	7	3	4		
WRANGELL	9		1	2	1		1			3				4	7		
YAKUTAT	7	6										5	2				
TOTAL	98	41	42	20	23	3	14	57	6	29	14	81	43	84	120		

TOTAL PRIORITIES

TRANSPORTATION PROJECTS
100 MILLION PLUS

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	TAKU RIVER RD.	SKY/HNS CANAL RD.	SKY (EAST LYNN CANAL RD.)	HNS/SKY CANAL RD.	HNS (WEST LYNN CANAL RD.)	KTN (UNUK RIVER RD.)	PSG (STIKINE RIVER RD.)	WRG (AARON CREEK RD.)	PSG/WRG STIKINE RIVER RD.)	ALSEK RIVER RD.									
ANGUON	10	24	6																
CRAIG																			
HAINES		2	4	16		2	19		7										
HOONAH	5	28	16	5															
HYDABURG					3	1		7	2										
HYDER	10	3	8	2	2	32	8	2	10	1									
JUNEAU	2	1	3	10	15	2	10		21	3									
KAKE	4	14	4				49		46										
KETCHIKAN		3	5	1	2	11	11	1	9	2									
KLAWOCK		1	1			6	1	1	1										
NETLAKATLA			1	5		39													
PELICAN	3	33	2	4		1				11									
PETERSBURG		6		11		16	14	1	34	1									
SITKA	3	4	10	1	10		11		3										
SKAGWAY	1	10	1	4	3	1	4		9										
TENAKEE SPRINGS	6	9		4	9	5	1			5									
THORNE BAY		8				27	11		26										
WRANGELL		1		1		2		24	1										
YAKUTAT	5	2			2				3	10									
TOTAL	49	149	61	64	46	145	139	35	171	33									

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TRANSPORTATION PROJECTS 50 - 100 MILLION DOLLARS														TOTAL PRIORIT	
	SITKA RD. (RODMAN BAY)	SITKA RD. 2 (WARM SPRINGS BAY)	PRINCE OF WHALES RD.	HOONAH RD.	KETCHIKAN AIRPORT RD.	P.O.M. MAINTLINE FERRY	HOONAH AIRPORT RD.	MORE FERRY SHIPS	REPLACE FERRY WITH SURFACE SKIMMERS						
ANGOOK	21				3			19							
CRAIG	1		12		5		8	6	1						
HAINES	18		2	1	7		17	17	7						
HOONAH	8			4	10		21	16	2						
HYDABURG	3	3	5			2									
HYDER			7	2	14	2		21	8						
JUNEAU	12	16	11	2	20	7	3	14	11						
KAKE		50			7			33	2						
KETCHIKAN	8	3	4		6	8		11	7						
KLAMUCK	1		8		3	2		1							
METLAKATLA	9	8	25	7	25	4	14	38	8						
PELICAN		3		9	12		5	21	3						
PETERSBURG	17	13	8	2	14		2	7	2						
SITKA	16	1	1		1			58	10						
SKAGWAY	7	4	3	2	4	1	4	22	5						
TENAKEE SPRINGS		2		8	14	1	1	37	1						
THORNE BAY	3		6		7	42			5						
WRANGELL	1	14	2	2	4	7	1	9	3						
YAKUTAT	3	2					2	21	2						
TOTAL	128	119	94	41	156	76	78	351	77						

TRANSPORTATION PROJECTS
LESS THAN 10 MILLION DOLLARS

TOTAL PRIORI

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	SEATTLE FERRY	BELLINGHAM FERRY	PRINCE RUPERT FERRY	HYDABURG FERRY	YAKUTAT FERRY	METLAKATLA MAINLINE FERRY	CHICKAGO IS. FERRY	HYDER FERRY	WRG/PSG FERRY	JUNEAU CITY FERRY	AUKE BAY FERRY TERMINAL	EXPAND BARGE SERVICE	CENTRALIZED BARGE SERVICE	DEVELOP AIR FLOAT FACILITIES	INSTALL AIR NAVAIDS	
ANGOON	12									1	1		10			
CRATIG	1					1						6	11	7	5	
HAINES	1	3	8		2	2			1	13	6	19	2	5	25	
HOONAH		2		3	3					5	9			2	12	
HYDABURG		5		8								7		8		
HYDER	3	9	7	3	3	2		46		1		2		13	10	
JUNEAU	10	4	10	4	11	1	1	7	4	12	4	7	7	17	21	
KAKE	15	16	1	1								1	5	1	9	
KETCHIKAN	17	7	11		6		3	3	1	2		6	10	7	22	
KLAHOCK					1							3		7	5	
METLAKATLA	16	6	1	4	8	33		1		2		10	7	20	18	
PELICAN	11	4			1		4					29		13	11	
PETERSBURG	12	6	5		3		3		3	6		12	3	14	23	
SITKA	21	6	1		1		1				5	21		15	11	
SKAGWAY	4	2	22	1	4		1	1	2	5	6	31	1	11	27	
TENAKEE SPRINGS	7			1	5		11	9		5		6	12	7	19	
THORNE BAY	4	9	11									2	10	5	7	
WRANGELL	19		2	2	1		2	1	10	5		2	2	6	11	
YAKUTAT	7	6			26					57	31	188	80	163	219	
TOTAL	160	85	79	27	75	39	26	68	21	57	31	188	80	163	219	

EVALUATION PARAMETERS
TRANSPORTATION

LOCAL ROUTE/ SERVICE STRUCTURE	EFFICIENT USE OF EQUIPMENT	OPPORTUNITY FOR PHASED DEVELOPMENT	DEVELOPMENT FOR RANGE OF NEEDS	FLEXIBILITY TO ADAPT SCHEDULES	SERVICES PHASED WITH DEVELOPMENT	KNOW CAPA- BILITY OF IMPLEMENTATION	MULTI-AGENCY DEVELOPMENT REQUIRED
ANGON	11	2	3	9			2
CRAIG	8	2	6	1	3		4
HAINES	14	6	2	10	14	1	
HUONAH	7	9	14	10	1		
HYDABURG	2	2		3	4	1	
HYDER	12	1	4	6	3	7	1
JUNEAU	17	12	11	10	6	5	2
KAKE	22	11	6	11	14	8	4
KETCHIKAN	8	10	14	5	5	8	10
KLANOCK	3	1	1		1	1	2
NETLAKATLA	6	10		3	16	1	3
PELICAN	6	10	6	7	10	2	3
PETERSBURG	9	7	10	4	8	3	1
SITKA	9	16	5	13	9	4	3
SKAGWAY	12	6	2	2	7	4	
TENAKEE SPRINGS	12	5	6	8	12	7	5
THORNE BAY	14	9	1	6	4	4	5
WRANGELL	11	2	3	1	9		
YAKUTAT	1	1	1	1	1	1	2
TOTAL	185	124	93	99	148	64	43
							26

EVALUATION PARAMETERS
LEVEL OF SERVICE

	DAYS SYSTEM FAILS TO PERFORM	POTENTIAL IMPROVED RELIABILITY	CHANGE IN MAINLINE FERRY CAPACITY	NO. OF MAIN- LINE FERRIES NEEDED	ACCIDENT EXPERIENCE	PROPERTY DAMAGE EXPERIENCE	FREIGHT LOSS, DAMAGE	CHANGE IN PASSANGER TRIP TIME	DELAY IN FREIGHT DELIVERY TIME	QUALITY OF SERVICE	COMFORT	WAITING TIME AT TRANSFERS	SERVICE AT DESIRED TRAVEL TIMES	ACCESSIBILITY OF TERMINAL
20														
ANGUON			5				5	1		10	2	5	5	
CRAIG	8		1					1	2	8	2	1		
HAINES	2	1	5	6			5	2	4	13	10	1		
HOONAH	4									6	4	3	15	8
HYDABURG	13						1				1		1	
HYDER	8	3	2	6		2	5	1	3	10	6	5	2	
JUNEAU	6	4	5	3	1		4	7	1	14	7		7	1
KAKE	3	5	1	3					10	31	7	2	3	8
KETCHIKAN	5	3	2	1	5	3	3	1	2	7	4	3	2	2
KLAWOCK	1	1				1				4	3	1	1	
NETLAKATLA	6	1	1	2		1	3	6	2	12	6	11	7	6
PELICAN	3	7				9		1		19	5	1		
PETERSBURG	8	8		3	1	2	2	2	6	3	9	8	1	4
SITKA		9	2	14				2	4	15	7	3	3	
SKAGWAY	8	2	1	5		2			1	10	6		5	4
TENAKEE SPRINGS	1	5		1	5	2	1		1	7	11		3	6
THORNE BAY	3	9	2		1	1		2	1	7	3	2	5	1
WRANGELL		3	2	5				3		11	7		3	10
YAKUTAT	3		1	1		3				2			2	2
TOTAL	82	61	21	10	50	12	2	25	17	99	51	37	75	41

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	NO. OF FAMILIES DISPLACED	NO. OF BUSINESSES DISPLACED	PUBLIC SERVICES DISPLACED	CHANGES IN COMMUNITY CHARACTER	OF LIFESTYLE	CHANGE IN COMMUNITY ISOLATION	CHANGES IN ACCESSIBILITY	DISTURBANCE AND FISHING EFFECTS ON COMMUNITY CULTURE	ACCESS TO PUBLIC FACILITIES OR RECREATION	CHANGE IN COMMUNITY INTERACTION	IMPACT ON HISTORIC NATURAL, CULTURAL SITES	ACCESS TO HISTORIC NATURAL, CULTURAL SITES	DEVELOPMENT OF INTEGRATED AREA	
ANGON				2	15	1	5	7	2	1				
CRAIG				4	3	5		1	1	2	6		2	
HAINES	3			4	13	7	5	5	4	10	1	4	2	2
HOONAH				1		3	5	18	8		7			
HYDABURG						4	3	2			2			
HYDER		1		14	10	16	5	13	3	2	2	4	1	
JUNEAU	9	6	1	8	9	12	8	10	4	5		5	3	1
KAKE				23	4	5	9	12		3	3	4	3	
KETCHIKAN		3		5	10	4	3	5	9	6	3	5	2	
KLANOCK				1		1	1	1		5		1	2	
METLAKATLA	1		1	6	1	12	4	4	6	7	9	1	4	2
PELICAN		1	2	9		11	3	6		7		3	1	1
PETERSBURG				11	11	8	4	6		3	4	2	3	1
SITKA	6		2	17	4	2	6	6	2	5		3		
SKAGWAY				3	1	2	2	7	1	3			2	
TENAKEE SPRINGS				12	13	2	2	14		2		6	3	2
THORNE BAY				4		12	9	3	1	5	6	1	1	5
WRANGELL		1	1	1	7	4	3	7	2	4	1		2	2
YAKUTAT		1				2		4				1		
TOTAL	19	13	7	125	101	113	77	131	43	62	40	40	28	25

EVALUATION PARAMETERS
ECONOMIC

	REDUCED TAXES FORM PROPERTY REMOVED	INCREASED TAXES FROM IMPROVED VALUE	INCREASE IN ASSESSMENT	IMPACT ON VALUATION	IMPACT OF EMPLOYMENT	IMPACT OF RETAIL SALE	IMPACT ON EMPLOYER PAYROLLS	INDUSTRIAL DEVELOPMENT	SYSTEM TRAVEL COST	DRIVER OR CREW COST	ADMINISTRATION AND GENERAL COSTS	MAINTENANCE COSTS	TOTAL OPERATING COSTS	LAND ACQUISITION COSTS	CONSTRUCTION COSTS	EQUIPMENT COSTS	TOTAL CAPITAL COSTS
ANGOON					4		8	4	2		4		3				6
CRAIG				5	1		2	3	1	1		2	3				
HAINES	1	3	3	5	3	3	2	21	1	4		1	6		3		6
HOONAH	1			15	5			12	2				1	4	2		
HYUABURG					4			9	1		1		1				3
HYDER	2	1	3	18	3	3	7	4	11				3				
JUNEAU	3	4	1	8			3	13	1	6	2	11	11	2	10		9
KAKE		1		18	10		2	7	17	2			11				10
KETCHIKAN	2			9	1	1	1	11	1	1	1	2	24	2	2		18
KLAWOCK				3			2	4	2				1				
NETLAKATLA			2	12	3	1	1	9	6	7	4	1	5	1	1	1	
PELICAN			2	9	2	2	2	1	2	6	3	3	3		1	2	7
PETERSBURG	1	1		8	1	1	2	4		6	1	7	10	2	9	3	8
SITKA			2	9	4			6	4	1	3	2	12		2		17
SKAGWAY		1	2	1	1	1		3	6	2	2	1	8	1	4		14
TENAKEE SPRINGS	1			10	1		2	4	2			0	10		9		10
THORNE BAY	1			10	2			14	4				3				15
WRANGELL	1	3	2	3			5		6	2	4	6	3	1	7	1	3
YAKUTAT	2	1															
TOTAL	15	15	17	144	45	29	114	69	66	11	28	52	115	14	50	7	116

III. Community Workshop Record

Presented in this section are any additional transportation options and evaluation parameters written in by workshop participants. The list of transportation goals and objectives brainstormed by participants is also presented. After this was completed, each participant was given three self adhesive dots to identify the objectives most important to them. They could place all three dots on a single objective or apply them to separate goals or objectives. Asterisks denote the number of dots and relative priority placed upon the goals and objectives listed by participants.

Angoon Public Workshop - 12 Participants
 October 20, 1977
 7:30 p.m.
 Angoon High School

Write In Transportation Options

- *1. Build two or three smaller ferries Le Conte class to better serve the villages.

Write In Evaluation Parameters

None

Transportation Goals and Objectives Identified

*** 1. More comfortable facilities aboard ferry and ashore.

*** 2. Attractive fares for ferry.

** 3. Improved ferry schedule.

4. Food and beverage facilities for mainline ferry.

*** 5. Alternate restroom facilities for LeConte.

*** 6. Improved communication between town and ferries.

**** 7. Blacktop Angoon and Killisnoo road.

** 8. Better communication service with Seattle Ferry Terminal.

* 9. Equitable airfares in relation to distance traveled.
 (example: Angoon - Juneau, Angoon - Sitka)

* 10. Schedule runs to small communities from more than one large city.

11. More comfortable facilities for seaplane floats, and airstrips.

12. Aircraft with improved heating systems and comfort.

* 13. Smoking section on small aircraft.

Craig Public Workshop - 7 Participants
 November 1, 1977
 7:30 p.m.
 Lower School Science Room

Write In Transportation Options

- ****1. Renovate existing ferry system.

Write In Evaluation Parameters

None

Transportation Goals and Objectives Identified

- * 1. Alaskans first.
- **** 2. Broad service, air, barge, ferry, freight etc., vs. tourism.
- *****3. Centralized integrated "hub" service.
- *****4. Minimum impact on environment.
- * 5. Minimal travel cost for the individual.
- 6. Convenience.
- ***
- *** 7. Safety, dependability.
- ** 8. Frequent service.
- 9. Optional growth capability.
- 10. Schedule flexibility.
- 11. Communication.

Haines Public Workshop - 22 Participants
 November 1, 1977
 7:30 p.m.
 High School Open Classroom

Write In Transportation Options

None

Write In Evaluation Parameters

1. Fuel consumption - differences in road traffic, water traffic.
2. Sensitivity to complaints.
3. Courteousness of ferry employees.
4. Water quality and hydrologic.

Transportation Goals and Objectives Identified

- **** 1. More ferry service and better scheduling with more tourism to help our now stagnant economy.
- *** 2. A link with Skagway when the Carcross Road is finished so we won't lose our people from Whitehorse.
- **** 3. Bigger and more modern airports.
- ** 4. Docking facilities for tour boats.
- **** 5. Weekend trips to Juneau (better schedules).
- ** 6. Better and easier ways to ship flammables on ferries.
- *** 7. Better scheduling to accomodate tourists.
- * 8. More air transportation out of Juneau.
- ** 9. Cheaper freight rates.
- *** 10. Time of arrival and departure for existing ferries to permit going to Juneau from various communities on weekends.
- ** 11. Have ferries arrive in Haines at a decent daylight hour - or at least so they can get service and cross the border without delay.
- * 12. Have another major airline into Juneau from Seattle etc.
- * 13. Stop Federal interference with airline scheduling in Alaska.

- **** 14. Use highway tax and gasoline tax for transportation other than building highways.
- ** 15. Skagway and Haines do not have a hospital. They need more reliable transportation.
- * 16. Faster Freight.
- 17. Faster passenger service.
- **** 18. Cheaper passenger and freight costs.
- * 19. Increased tourism.
- ** 20. Better maintenance.
- * 21. Better access.
- * 22. Better airports.
- * 23. Better ferry scheduling.

Hoonah Public Workshop - 15 Participants
 October 17, 1977
 7:30 p.m.
 Community Building

Write In Transportation Options

- ****]. More economical and regular bus service to and from Auke Bay for the Le Conte.

Write In Evaluation Parameters

None

Transportation Goals and Objectives Identified

- ** 1. Emergency medical service.
2. Ferry service all year round with no gaps during layups.
3. Improved air nav aids.
4. Hoonah airport terminal.
- ** 5. Blacktop streets of Hoonah and the Gartini Highway.
6. Hoonah boat harbor.
7. Ferry terminal to be adapted to all types of ferries.
- **** 8. Elderly and handicapped to be considered for special services.
- * 9. Convenience, comfort and more frequent service to Hoonah.
- ** 10. Elevators on ferries.
- * 11. Improve roads.
- **** 12. Improve airports.
13. Designated unicom.
14. Handicapped facilities on ferries.
- **** 15. Improve, repair or build new boat harbor for Hoonah.
16. Improve fuel facilities.

Hydaburg Public Workshop - 7 Participants
November 11, 1977
1:00 p.m.
Community Building

Write in Transportation Options

None

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

- *** 1. Faster Service.
- *** 2. More flexible schedules.
- **** 3. More frequent service (mail etc.).
- **** 4. More reliable safe service.
- * 5. Convenient service.

Hyder Public Workshop - 31 Participants
 October 29, 1977
 7:30 p.m.
 Highway Building

Write In Transportation Options

1. In Southeastern Alaska the water deadheads, debris etc., - this garbage would have a direct effect on the operation of any surface skimmer regardless if adequate radar is available or not. Once the foil is damaged the craft comes to almost a standstill thus causing delay and expense.
2. The Ketchikan Airport Bridge should have been built when the airport was completed. If the state wants to build one now, use the \$1.50 per person fare and don't oblige the people outside of Ketchikan to pay for it.
3. A ferry system for Hyder would be practical if the ferry was a small craft and it had a regular system of landing in Hyder in the summer. But, I don't think it would have to keep a tight run in the winter.
4. The Alaska Marine Highway was built in lieu of a roadway - so why use it to support the tourist business. Put the people of Alaska first and forget the tourist.
5. Use Hyder for Southern Terminus for Alaska Marine Highway System.

Write in Evaluation Parameters

1. Keeping out rift raft..
2. Use Hyder for Southern Terminus.
3. Logical route/service structure.

Transportation Goals and Objectives Identified

1. We don't feel a ferry service is necessary because;
 - a. There's not enough traffic demand.
 - b. With the new road (B.C. #37) we can drive to Prince Rupert and catch the ferry.
 - c. Also there is a mailplane available to Ketchikan for a reasonable fare.

- *** 2. Improve mail service.
3. Hyder/Southern terminus to Cassiar Highway.

- ** 4. Dependable-transportation-system (reliable ferry service).
- ** 5. Lower cost in products and shipping.
- **** 6. Lower freight rates.
- 7. More dependable passenger connections.
- *** 8. Possible exportation of local products such as lumber, fish and mineral with improved transportation.
- 9. Cheaper access to Ketchikan.



Juneau Public Workshop - 37 Participants
 October 18, 1977
 7:30 p.m.
 Juneau-Douglas High School Cafeteria

Write In Transportation Options

1. Proposal: That the mainline service continue to serve the community as it does more or less - from Prince Rupert - and that shuttle service intra-region be added on between the small communities to increase regional transportation without reducing the mainline service; in other words not using Shuttles as a substitution for mainline.
2. Transportation patterns within the larger communities should be addressed in this study. Innovative ways of handling communities traffic in Juneau, for instance, should receive some consideration. Increased bus or new fixed-rail service may be more desirable in the long run than the continued use of single passage car transport.
3. Run mainline ferry from Prince Rupert north (expand service) with mainline connecting loop from Seattle to Prince Rupert (i.e. one ferry).

****4. Emergency airstrips.

Write In Evaluation Parameters

1. Under social - recognition of long-term (ie. roads provide the long-term potential for a much different type of future for Southeast than other transportation options).
2. Page 16 of the "Preliminary Transportation Assessment" indicates overall reduction in fuel consumed by use of road system may actually lead to greater efficiency and greater fuel use. This comment does not seem to register on the charts and should be taken into account.

Transportation Goals and Objectives Identified

- **** 1. Improve accessibility to Juneau with a primary eye to road construction costs.
- ** 2. Increase ferry service in winter.
- *** 3. More roads.
- * 4. Reduce ferry costs to equivalent of auto travel for same mileage.
- *** 5. Identify and isolate primary wilderness areas.
6. Build trails up historical river valleys like the Taku and Stikine.

7. Public sector to aid development of transportation connections and systems.
8. More surface transportation connection to Canada and the lower 48.
9. Railroad options considered to Canada and the lower 48.
10. See fuel and energy consideration play a major role in transportation alternatives for Southeastern Alaska.
- * 11. Build bike trails with all highways.
- ** 12. All weather reliability.
13. Low cost or no cost terminals.
- ** 14. Integrated freight service (intermodal capability).
- * 15. Container and equipment standardization.
- * 16. Routes and scheduling.
17. Freight and passenger operation.
18. Specialized air freight.
- * 19. State get out of freight service.
- *** 20. Develop amphibious transportation system.
21. Industry to develop outbound cargo.
22. A competitive air service.
23. Examine shuttle ferry concept.
24. More nav aids.
- * 25. Reduce cost to user.
- * 26. Reduce cost to taxpayer.
- * 27. Improve accessibility - multiple use.
28. Reduce travel time.
- * 29. Freight access - improve or establish.
30. Develop recreation potential.
31. Through vs. segmented service.
- ** 32. Land use designations, define and establish.

- ** 33. Test for feasibility - reason.
- **** 34. Political impact.
- 35. Repeal the Jones Act.
- *** 36. Improve existing connections between communities via the Marine Highways systems.
- *** 37. Avoid emphasis or increased dependance on private autos and expanded road systems.
- *** 38. Keep Marine Highway system as the primary means of travel in Southeast.
- 39. The public sector should accomodate the developement of natural resources and renewable resource developement and provide for capitalizing systems to assist developement in all modes.

Kake Public Workshop - 28 Participants

October 25, 1977

7:30 p.m.

City Council Chambers

Write In Transportation Options

** 1. Kake Airport.

** 2. Breakwater and Harbor Facilities.

* 3. Renovate existing ferry system.

***** 4. None of the above - (meaning any transportation projects).

Write In Evaluation Parameters

1. Comfort, quality of seating is very poor on ferries.
2. Quality of service for freight and baggage is poor.

Transportation Goals and Objectives Identified

- **** 1. Reliability of service.
- *** 2. Flexibility of service.
- ** 3. More service at convenient times.
- **** 4. Ferry service to help small communities.
- **** 5. Reduction of all freight costs by using private costs.
6. More barge service.
7. Improved accessibility to medical facilities for remote areas.

8. Faster more efficient freight.
9. Sea and land product transported more easily.
10. More southbound planes.
11. Improved air service to make connections to mainline planes.
- ** 12. Competitive transportation facilities in Southeastern Alaska.
13. Encourage tourists through improved transportation.

Ketchikan Public Workshop - 25 Participants
 October 26, 1977
 7:30 p.m.
 High School Humanities Building

Write In Transportation Options

****1. No 100 million dollar roads.

*** 2. No Ketchikan Airport Bridge.

*** 3. Tolstoi Bay Mainline Ferry Terminal.

** 4. Hydaburg Road Completion.

*****5. Kasaan Ferry Terminal.

6. Mountain tops radio repeaters.

** 7. Develop seaplane facilities in preference to airstrips at coastal communities.

* 8. Opposed to Stikine River road.

*** 9. Opposed to all extensive road systems especially interior road connections links with Canadian.

10. Opposed to Stikine River Road and Unuk River Roads.

11. Opposed to Kake Road and Lynn Canal Road.

12. Replace ferries with surface skimmers as vessels reach obsolescence or as economies dictate advantage to do so; and as technological load-limit capacity permits.

Write In Evaluation Parameters

1. Cost effectiveness.

2. Conflicts with areas currently proposed for Wilderness Status.

3. Social value of continuing to subsidize water and air travel and maintain ability to live in Southeast without a car.

4. Economic impact of in-state winter ferry maintenance as a new service industry.

Transportation Goals and Objectives Identified

- **** 1. Increased frequency of service - air, land and water.
- * 2. More and complete highway networks.
- * 3. Efficient scheduling.
- *** 4. Increased access to other communities.
- *** 5. Increased access to recreational areas.
- * 6. Better air freight service.
- *** 7. Local marine maintenance.
- 8. Improved safety facilities.
- *** 9. Lighted heliports in all communities.
- 10. Optimizing transportation services for communities in terms of best modes to serve their communities needs at the least economic cost.
- ** 11. Important to maintain Southeastern Alaska lifestyle and ability to live without needing an auto in this region.
- ** 12. Efficient use of energy.
- ** 13. Efficient use of manpower.
- ** 14. Minimize intrusion on roadless areas.
- ** 15. Improved community input processing in the transportation planning process.
- 16. Increased numbers of ferries and improved ferry service.
- **** 17. Continue ferry run to Seattle.
- 18. No major roads - concentrate on better links between small communities via skimmers or ferries.
- **** 19. Give environmental effects high priority.
- 20. Opposed to Ketchikan Air Bridge.
- 21. Investigate use of blimps for transportation and logging.
- 22. Taku River Road extraordinarily expensive - no.
- 23. Skagway/Haines Road - no, communities not large enough to warrant.

- 24. Unuk River Road - no need for this kind of developement.
- 25. Petersburg Road - no - high wilderness value, recreational value.
- 26. Wrangell Road - best road choice, but still not a favorite.
- 27. More frequent air service.
- 28. Discourage tourism.
- * 29. Fast and frequent ferry service.
- * 30. Competitive airlines.
- * 31. Direct air service to Ketchikan and Juneau.
- 32. Accesses to Canadian resouces.
- 33. Cost effective transportation.
- 34. Improved public dissemination of transportaiton service schedules and rate changes.
- 35. Minimizing transportation costs for passengers and freight.
- 36. Get Marine Highway system out of the freight business.

Klawock Public Workshop - 6 Participants
November 1, 1977
2:30 p.m.
Klawock School Library

Write In Transportation Options

None

Write In Evaluation Parameters

None

Transportation Goals And Objective Identified

- *** 1. Bring cost of living down in outlying areas.
- *** 2. Decrease cost of transportation.
- *****3. Improved service and reliability.
- 4. More employment for Alaskans.
- * 5. Increased employment of local residents in area where project is constructed.

Metlakatla Public Workshop - 41 Participants
 November 3, 1977
 7:30 p.m.
 Town Hall

Write In Transportation Options

1. Reactivate Annette Airstrip or Airport.
- ****
- **** 2. Daily Chilkat service between Metlakatla and Ketchikan.
- ****
- **** 3. Chilkat based in Metlakatla.
- ****
- **** 4. Subsidized Air Taxi service.
- ***
- *** 5. Base Metlakatla-Ketchikan ferry at Metlakatla.
- *****6. Continued maintenance of Annette Airstrip.
- ****
- *** 7. Improvements in Annette Airport.
- ** 8. Road from Metlakatla to Annette Bay with bridge to Ketchikan road system.
- **** 9. Improve seafloat facilities. octagonal shaped. with passenger waiting facilities.
- **** 10. Freight terminal at Annette Airport.

Write In Evaluation Parameters

None

Transportation Goals and Objectives Identified

- ** 1. To promote tourism.
2. Personal convenience.
3. Promote Industry and Business.
- *** 4. Develop road systems.
5. Better schedules (all means of transportation).
- * 6. Smaller ferries for off season runs.

- * 7. Eight hour stopover in Ketchikan on Saturday (Annette Run).
- ** 8. Better ferry facilities at Metlakatla.
- * 9. More schedule stopovers at points in Southeastern Alaska for recreation purposes.
- * 10. Improve Air Transportation for Metlakatla.
- ** 11. Tourism.
- ** 12. Better ferry schedule to our advantage.
- ** 13. Emphasize construction of Waldon Point road.
- ** 14. Coordinate scheduling with school activities.
- ** 15. Develop ferry terminus to accomodate all size ferries.
- ** 16. Schedule more visits by mainline ferry service.
- *** 17. Change seaplane float to more leeward position.
- * 18. Family fares.
- * 19. Lower rates.
- 20. Travel insurance.
- * 21. Commercial jet air service.
- * 22. Two ferry trips a day to Ketchikan.
- * 23. Air freight service.
- * 24. Larger float plane with shelter.
- * 25. Better mail service.
- * 26. Freight area on ferry.
- 27. Improve van service with storage.
- * 28. Ferry terminal with waiting room.
- 29. More native employment on ferry system.
- ** 30. Jet service and taxi - air service.

- * 31. Every day flights.
- 32. Reasonable fares to other cities.
- 33. Ferry service everyday.
- 34. Better mail service.
- * 35. Air cargo service.
- **** 36. The annual transportation cost per family in Southeast should be the same as the average U.S. family.
- ** 37. Daily schedule for all types of transportation.
- 38. Schedules should meet users needs.
- 39. Air cargo service at low cost.
- ** 40. Reactivation of Annette Airport.
- 41. Immediate expansion of ferry facilities at Metlakatla to accommodate ferries of the Aurora class or larger.
- *** 42. Moving (relocation) of present seaplane float to westside city dock with installation of new float range.
- *** 43. Basing current ferry serving Metlakatla - Ketchikan area at Metlakatla to provide better service.
- 44. Additional ferry to accommodate Chilkat.

Pelican Public Workshop - 17 Participants
 October 18, 1977
 7:30 p.m.
 Pelican High School

Write In Transportation Options

- ****1. More ferry service to Pelican.

- *****2. More air service to Pelican.

3. Local road in Liz. Inlet, not to Hoonah.

4. More service to Pelican by water and air.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

- *** 1. Frequent freight service.

- * 2. Airstrips.

- ** 3. Improve float plane facilities.

- * 4. Reduce cost of air transportation.

5. Reduce cost of ferry transportation.

- *** 6. More ferry service (weekly).

7. Ferry freight needs to be shipped without using vehicles. Cartons, crates, or containers should be utilized and encouraged.

- *** 8. No roads.

- **** 9. Ferry once a week.

- *** 10. Wheel air service.

- **** 11. Barge service.

- *** 12. Safety (radar).

13. Local access routes.

- 14. Recreational areas (access).
- 15. Afternoon ferry service.
- * 16. Airport with Bar.
- 17. Availability of property.
- 18. Communications.
- 19. Radio and T.V.
- 20. Better Coast Guard service.
- *** 21. More and better transportation.
- ** 22. More priority on ferry service to Pelican.
- ** 23. More priority on air service to Pelican.
- ** 24. Improvement on all transportation service.
- ** 25. Scheduled air service to Juneau and Sitka.
- ** 26. Freight service on ferry without vehicle.
- * 27. First Class mail on ferry.
- * 28. Bar open all the way to Juneau on the ferry.

Petersburg Public Workshop - 25 Participants
 October 25, 1977
 7:30 p.m.
 Elementary School Library

Write In Transportation Options

- ** 1. Surface Skimmer down Stikine River from Iskut River road system with a tie to PSG/WRG.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

- *** 1. Economy, benefits, costs.
- 2. Better terminal facilities (air and ferry).
- * 3. Better accommodations and passenger service.
- **** 4. Improve ferry reservation and information service.
- * 5. Better air scheduling and connections in and out of Southeastern Alaska.
- * 6. Safety all modes.
- * 7. Courtesy in ferry service.
- * 8. Emergency accident/health capability (air, south).
- 9. Freight rates lower.
- ** 10. Reliability of Service.
- 11. Coordination of transportation modes for integrated systems.
- 12. Larger Federal financing share.
- 13. Environmental protection.
- 14. Total loss of benefits provided.
- * 15. Fresh vegetables.
- * 16. Capability to handle needs.
- * 17. Meet basic requirement of population growth.
- * 18. Get studies finished and start projects.
- ** 19. Provide capability of marketing goods.
- * 20. Affordable transportation for everyone.
- *** 21. Alternate means of transportation.

- * 22. Daily ferry service.
- ** 23. Improved ferry service (number of trips).
- 24. Improved air service (number of trips).
- 25. No visible clearcutting on ferry routes.
- *** 26. As many options as possible for travel.
- 27. Cheaper freight rates.
- 28. Variety of air service.
- ** 29. Wages paid ferry personnel too much.
- 30. Do not buy anymore (anything) from Lockheed - builders of the M/V Columbia.
- ** 31. Want to go to Seattle not Bellingham or Prince Rupert.
- * 32. Do not agree with extensive winter shutdown period for maintenance of ferries.
- 33. Instead of road system up Stikine river - need surface skimmer vehicles.
- 34. Instead of only water routes between communities consider land based travel.
- * 35. To develop transportation commensurate with need.
- ** 36. To protect existing life style or way of life.
- * 37. To protect existing environment and to minimize environmental damage.
- ** 38. Promote economic development.
- **** 39. Weight subjective values with economic values.
- * 40. Consider national security needs.
- 41. Promoting increased recreation.
- 42. Conserve wildlife values.
- 43. Be as flexible as possible but provide for basic capital investment now.
- ** 44. Develop most economic mode of transportation.
- * 45. Develop most efficient mode of transportation.
- 46. Increase transportation frequency.

- * 47. Cut cost without cutting service.
- 48. Surface transport cost vs. air transport cost.
- * 49. Improved access to continental road system.
- 50. Moderating tourist activity.
- *****51. Develop consistent growth pattern for community.
- 52. Moderating tourist activity.
- * 53. Improve tax assessment method.
- ** 54. Improve international trade transportation needs.
- ** 55. Improved safety.
- ** 56. Emergency evacuation needs to be met.
- 57. Reliability of air transportation.

Sitka Public Workshop - 25 Participants
October 26, 1977
7:30 p.m.
Centennial Building

Write In Transportation Options

[illegible]

*****]. None of the above (means no transportation projects).

** 2. Road around the Island.

*** 3. Maintain existing ferry terminals.

Write In Evaluation Parameters

None

Transportation Goals And Objective Identified

1. Liability.

*****2. Reliability.

3. Efficiency.

**** 4. Completion.

5. Flexibility.

* 6. Environmental.

*****7. Free Enterprise.

*** 8. Quality of surroundings.

9. Frequency.

- 10. Speed.
- 11. Cost, Construction.
- 12. Safety.
- * 13. Usage cost.
- 14. Maintenance cost.
- 15. Implementation time.
- 16. Business development.
- ** 17. Long Range Planning.
- 18. Increased accessibility.
- 19. Provide main emphasis on marine highway system.
- * 20. Provide for a balance of access for development and recreation.
- 21. Protect existing wilderness areas and the wildlife within.
- ** 22. Widen and deepen surges narrows.
- * 23. Minimizing environmental impact.
- *** 24. Minimize road construction and emphasizing water and air transportation.
- * 25. Improve ferry transportation.
- * 26. Provide a road-link from a place in S.E. to mainland to the South.
- ** 27. Faster, more reliable, efficient, cheaper marine highway transportation service in S.E.
- *****28. More frequent ferries.
- *** 29. Daily ferry service.
- ** 30. Regular accessible transportation which is economically environmentally sound.
- *****
- *****31. Stress on air and marine transportation vs. roads.

Skagway Public Workshop - 20 Participants
October 17, 1977
7:30 p.m.
City School Multi-Purpose Room

Write In Transportation Options

None

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

1. Cheaper fare (ferry).
2. Increase barge service.
3. Improved air facilities.
4. Klondike Highway open year around.
5. Use of surface skimmers.
6. Improve Dyea road.
7. More jet service completion.
8. Good mail service, more reliable.
9. Recreational vehicle facilities.
10. Promote tourism.
11. Jones Act.

Tenakee Springs Public Workshop - 18 Participants
 October 19, 1977
 8:00 p.m.
 Shamrock Building

Write In Transportation Options

*****] 1. No road.

2. Improve Air Float at Tenakee.

3. Enlarge boat harbor and add ships for skiffs.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

*** 1. To please the people.

** 2. To please the animals.

** 3. To preserve the character of Southeastern communities.

4. No airstrips in Tenakee.

* 5. To protect our fishing.

**** 6. Improve ferries rather than roads.

7. Local input having priority.

**** 8. Leaving undisturbed areas undisturbed.

** 9. Keep our city unique.

*****] 10. No roads.

*** 11. No vehicles on trails.

* 12. Larger boat harbor and public facilities.

*** 13. Inexpensive, reasonably rapid, frequent and safe.

- * 14. Comfort.
- ** 15. Freight service ~~twice a month~~ to village.
- *** 16. Lower air fares.
- 17. Scheduled air service.
- * 18. Improved communications.
- * 19. Improved harbor facilities.
- ** 20. Landing Strip.
- *** 21. Safe, dependable, cheap, regular fast transportation.
- * 22. Daylight transportation for viewing.
- 23. Improvement of transportation service.
- *** 24. Daily scheduled transportation.
- 25. Minimum layover at terminals.
- ** 26. Minimum amount of road put through roadless areas.
- * 27. Direct transportation from Tenakee to States (lower 48).
- 28. Improved transportation with minimum destruction of wildlife/and hunting areas.
- 29. Frequent ferry service.
- 30. Shuttle from Tenakee to connect with mainline ferry.
- * 31. Maintain present air schedule.
- 32. Improve air service to Sitka from Tenakee.
- *** 33. Freight service between Tenakee and Juneau at a more reasonable rate.
- *** 34. Medical help available on Ferries.
- *** 35. No connecting roads to other communities from Tenakee.

Thorne Bay Public Workshop - 23 Participants
 November 2, 1977
 2:00 p.m.
 Thorne Bay Recreational Hall

Write In Transportation Options

- ** 1. Hook up Lake Ellen road with Hollis Terminal.
- *****
- ****2. Tolstoi mainline ferry terminal.
- *****
- *****3. Narrow Point ferry terminal for Prince of Wales Island (deep harbor, road built and well protected).
- ** 4. Develop airstrip in Thorne Bay.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

- ***
- *** 1. Year around service.
- *** 2. Reasonable rates.
- ***
- ** 3. Reliable service.
- **** 4. Accessible service.
- 5. Safe service.
- **** 6. Competitive Air Service.
- ***
- ** 7. Develop road system to enable short ferry service.
- 8. Develop an economic transportation system.
- ****
- **** 9. Service for Alaskans on ferry system.
- *** 10. More and efficient transportation.
- *** 11. Year around transportation system to mainland.
- **** 12. Cheaper freight rates.
- ** 13. Better public facilities.

Wrangell Public Workshop - 20 Participants
 October 24, 1977
 7:30 p.m.
 City Council Chambers

Write In Transportation Options

1. Absolutely not (meaning transportation projects) - centralize large service.

- *****2. State subsidize - feed air routes passenger and freight.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

- **** 1. Economic Development.
- **** 2. More and better ferry service.
- *** 3. Increase job opportunities.
4. Increase accesibility to small communities.
5. Develop tourism.
- * 6. Reliability of service.
- * 7. Better freight service.
- *** 8. Decrease freight and passenger costs.
- * 9. Recreation development.
- * 10. Access to Hinterlands.
- * 11. Improve opportunities for school travel with minimum class time loss and reasonable cost.
12. Destroy transportation monopoly.
13. Improve power transmission.
- *****14. Accountability of officials to Alaskans.
- *** 15. Increase frequency of service for all modes.

16. Ferry schedule match local work and social schedule.
17. Develop various modes of transportation.
18. Cheaper transportation.
- * 19. Wrangell - Juneau - Wrangell same day.
- * 20. Wrangell - Ketchikan - Wrangell same day.
- * 21. Wrangell - Petersburg - Wrangell same day.
22. Flight safety with airport use.
23. Subsidize passenger and freight feeder service.
24. More frequent large service to outlying.
- ** 25. Hazard substance transportation to outlying community and logging camps.
- ** 26. Coordinate winter ferry and airline schedules.

Yakutat Public Workshop - 16 Participants
 October 19, 1977
 7:30 p.m.
 City Hall

Write In Transportation Options

***1. Dig Bay/Yakutat road.

**2. State Assistance for water service facilities.

*****3. Develop air cargo facilities.

Write In Evaluation Parameters

None

Transportation Goals And Objectives Identified

*** 1. Abolition of inhibiting regulation.

*** 2. Need of transportation for Yakutat.

3. Route system to make us accessible.

4. Independent transportation system for Yakutat to link it with Southeastern Alaska.

5. Less study more doing.

6. Less departmental reclassification.

7. State and Federal subsidy to communities for transportation.

8. More power to the individual in their economic pursuits.

9. Immediate action to make a transportation alternative for Yakutat accessible.

*** 10. Encourage development.

11. Make immediate state lands available to private citizens.

12. Make gravel available to the public.

13. Get rid of wilderness utilization of Alaska.

IV. Summary of Letter and Comments

The study team mailed the "Preliminary Transportation Assessment" and solicited comments from a large number of individuals, agencies, conservation groups, local governments, State agencies, and Federal agencies including Canada. Letters and comments were received from a variety of State and Federal agencies, concerned residents of Southeastern Alaska, the governments of the Province of British Columbia and the Yukon Territory, and the Canadian Federal Government. These comments concerned the forty one transportation options and the evaluation parameters identified in the "Preliminary Transportation Assessment", and discussed in the public workshops. Because of the large amount of correspondence received, this summary will only highlight these comments. However, for a more detailed analysis, a complete copy of all the letters and comments will be provided, for the interested reader, following this summary.

For "social parameters" to be evaluated, comments were received from the University of Alaska in Juneau, the USDA Forest Service in Juneau and a resident of Petersburg. It was suggested by the University of Alaska in Juneau that additional sociocultural research needed to be conducted to ascertain the true effects of road construction.

Comments regarding air transportation were received from Congressman Don Young, the Federal Aviation Administration, Alaska Region, the British Columbia Ministry of Energy, Transport and Communications, residents of Sitka and Petersburg and Tyee Airlines. For example, a resident of Petersburg suggested reestablishment of an intrasoutheastern air service of the type that existed with Coastal-Ellis Airlines. Also, Congressman Young and the President of Tyee Airlines stated that the deregulation of airlines would have a significant impact on Southeastern Alaska. The British Columbia Ministry of Energy, Transport and Communications provided a complete detailed extract of aircraft operating cost from their air study.

Concerning environmental and land use categories, comments were received from the USDA Geological Survey, the USDA Forest Service in Juneau, the USDA Fish and Wildlife Service, the Alaska Department of Fish and Game and the Alaska Department of Environmental Conservation. Interestingly, it was pointed out by the Forest Service in Juneau that nowhere was "people pressure" on Fish and Wildlife mentioned. Also, it was pointed out by the USDA Geological Survey that environmental factors should have included various impacts on water resources.

A variety of comments regarding marine transportation were received from Tyee Airlines, the USDA Forest Service - Tongass National Forest Office in Ketchikan, the Alaska Department of Education and residents of Sitka and Petersburg. The Alaska Department of Education stated that the use of ACV's would be a cost effective transportation alternative for Southeastern Alaska. Congressman Young indicated a method should be found to prevent ferry personnel from stiking. Also, a wide variety of suggestions for new ferry routes were given, and for further information regarding these please consult the reprinted comments and letters following this summary.

For road corridors, a large variety of suggestions were received from the USDA Forest Service - Tongass National Forest Office in Ketchikan, the Department of Highways and Public Works for the Government of the Yukon Territory, Tyee Airlines and residents of Petersburg and Sitka. Again, these comments are very extensive and for further information regarding them, please consult the letters and comments which are reprinted following this summary.

Comments were received on barge and freight movement from a resident of Sitka, the Alaska Department of Education and the British Columbia Ministry of Energy, Transport and Communications.

Regarding economic parameters, comments were received from the Yukon Territory Department of Highways and Public Works and the USDA Forest Service in Juneau.

The possibility of incorporating an electrical transmission corridor with the proposed highway transportation corridors was suggested by the Department of Energy, Alaska Power Administration. According to the Department of Energy, new highway transportation corridors would enhance the possibility of developing Southeastern Alaska hydroelectric potential.

Generally speaking, the few written comments received from residents of Southeastern Alaska were against roads. It was felt by them that developing air and ferry transportation would be cheaper, more environmentally sound, and would not cause a major change in the lifestyle of Southeastern Alaska.

On the following pages are all the letters and comments received concerning the forty one transportation options and the evaluation parameters. Special thanks to all those who sent in their comments, criticisms and suggestions.

List of Agencies and Citizens who Sent Comments and Letters

Department of Energy, Alaska Power Administration
 United States Department of the Interior Geological Survey
 British Columbia Ferry Corporation
 United States Department of the Interior, Fish and Wildlife Service
 United States Congressman Don Young
 United States Senator Mike Gravel
 United States Department of the Interior, Office of the Secretary
 Syd Wright of Petersburg, Alaska
 Alaska Department of Fish and Game
 United State Department of Agriculture, Forest Service, Tongass Natural Forest
 University of Alaska, Southeast
 Environment Canada
 Federal Aviation Administration, Alaska Region
 United States Department of the Interior, Geological Survey
 Mrs. Dixie M. Baade of Petersburg, Alaska
 United States Department of the Interior, Forest Service, Juneau
 Paul Peyton of Sitka, Alaska
 Alaska Department of Education
 Larry Edwards of Sitka, Alaska
 British Columbia Ministry of Energy, Transport and Communications
 Tyee Airlines Inc., Ketchikan Alaska
 Alaska Department of Environmental Conservation
 Department of the Army, Alaska District, Corps of Engineers
 Yukon Territory Department of Highways and Public Works
 Wingren Enterprises, Ketchikan Alaska
 British Columbia, Ministry of the Environment



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OCT 31 1977

In Reply Refer To:
EGS-Mail Stop 760Mr. Andrew Hughes
Southeastern Alaska Transportation Study
Department of Transportation and Public
Facilities
Juneau, Alaska 99824

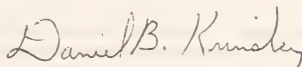
Dear Mr. Hughes:

We have the Preliminary Transportation Assessment for the Southeastern Alaska Transportation Study and offer the following technical assistance.

We suggest that environmental factors considered should include effects of the various options on water resources. Because of the current state of development and impending increases in development of the area concerned, unique opportunities exist to minimize such impacts. In turn, impacts of ground water and surface water on some of the transportation options may be worthy of consideration.

Thank you for the opportunity to provide assistance.

Sincerely yours,


Daniel B. Krinsley



United States Department of the Interior

FISH AND WILDLIFE SERVICE

ALASKA AREA OFFICE
813 D STREET
ANCHORAGE, ALASKA 99501

28 OCT 1977

Mr. Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study
Department of Transportation and Public Facilities
Box 3-1000
Juneau, Alaska 99802

Dear Mr. Hughes:

Our southeastern Ecological Services staff has reviewed the preliminary transportation assessment developed by your Department and attended the October 18 workshop in Juneau. We appreciate the opportunity to comment and voice our concerns, as it is the goal of the U.S. Fish and Wildlife Service to insure adequate consideration of fish and wildlife resources in the decision making process.

We would like to take this opportunity to commend your Department and the firm of Wilbur Smith and Associates for their efforts in involving the public and the various state and federal agencies in the very preliminary stages of plan development. We also appreciate the importance placed on environmental concerns which are well represented in the parameters.

At this very formative stage in the plan development, we find it necessary to use subjective analysis of environmental impacts; consequently, it is difficult for us to provide any specific comments or criticisms. However, we intend to keep abreast of the plan as it matures and contribute our comments and assistance to your group in the selection and evaluation of the various options.

Sincerely yours,

Acting Assistant Area Director



64

Save Energy and You Serve America!

Rec'd Oct 31, 1977

12-00000 Rev 10/70

STATE
of ALASKA

MEMORANDUM

TO: Andy Hughes
Transportation Planner
Southeastern Region
DOT/PF

FROM: Rick Reed *Rick Reed*
Regional Supervisor
Habitat Protection Section
Juneau

DATE October 14, 1977

FILE NO

TELEPHONE NO

SUBJECT Southeast Transportation
Study

We have reviewed the material you have forwarded on the Southeast Transportation Study including the "Preliminary Transportation Assessment". As I indicated at the last meeting, the study is presently in too general of a form for us to adequately comment.

About the only specific comments that can be made at present would concern obvious things such as "ferry routes have less impacts than road routes". As the study moves into its next phase after the next series of public meetings, and the options are reduced, I feel we will be able to provide better evaluations.

As also indicated at the meeting, a much more detailed evaluation of road locations will eventually be needed. Including discussion of such impacts as increased access, loss of habitat (both actually due to construction, and loss of use due to human activity), and alternative routes within the same valley. However, such evaluations must wait until the planning has reached a more refined level. Consequently we would like to be kept advised of the plan's progress and when we can provide additional assistance.

One specific point that should be corrected is the ADF&G contact as listed in the Data Acquisition Report on page 7. The address listed is the Anchorage regional office, this should be the Juneau regional office. I understand why they used the Anchorage address, it is because that is where the "Special Projects" is located. However, all requests for information in southeast should come to this office

cc: S. Haavig



Department Of Energy

Alaska Power Administration
P.O. Box 50
Juneau, Alaska 99802

December 7, 1977

Mr. Andrew Hughes
State Project Manager
Department of Transportation &
Public Facilities
P.O. Box 3-1000
Juneau, Alaska 99802

Dear Mr. Hughes:

Thank you for the opportunity to comment on your "Preliminary Transportation Assessment."

We are in the process of preparing a study and report on a Southeast Alaska electrical intertie between several of the larger communities in Southeast Alaska. The possibility of incorporating an electrical transmission corridor and a highway transportation corridor has many favorable aspects. Basically, availability of a road substantially eases the problems and costs of locating, constructing, and operating transmission lines. This, in turn, could enhance feasibility of developing some of the area's hydroelectric resources.

Comments on the options presented in your report which would favor eventual development of transmission corridors are set out below.

Portions of the Petersburg-Wrangell, Stikine-Iskut River Road right-of-way or clearing could possibly be incorporated advantageously with portions of a transmission corridor between the communities. Similarly, portions of the Haines-Skagway highway corridor could be incorporated with a transmission line corridor.

The Haines-Juneau road ferry (Option 3) and the Haines-Skagway road link (Option 4) likewise hold favorable promise.

We plan to forward a draft of our study results and transmission report for your consideration in the near future. In the meantime, we hope our comments are useful.

Sincerely,

A handwritten signature in dark ink, appearing to read 'R. J. Cross', is written over the typed name.

Robert J. Cross
Administrator

MAILING ADDRESS.

~~XXXXXXXXXXXXXXXXXXXX~~~~XXXXXXXX~~

818 Broughton Street,

Victoria. B.C.

V8W 1E4.



BRITISH COLUMBIA FERRIES

October 24th, 1977.

Department of Transportation and Public
Facilities,
State of Alaska,
Box 3-1000,
JUNEAU. Alaska.
99811. U.S.A.

Attention Mr. Andrew Hughes, State Project Manager,
Southeastern Alaska Transportation Study.

Dear Mr. Hughes:

Thank you for your letter of October 10th, 1977 with which you enclosed a copy of the Preliminary Transportation Assessment prepared by Wilbur Smith and Associates.

I have passed your letter and the enclosure to Mr. Roy Illing, Deputy Minister of Energy, Transport and Communications, British Columbia Government. Mr. Illing advises me his staff will examine the Assessment and provide you with comment on the report by November 4th, 1977.

You will appreciate that this Corporation is concerned only with the B.C. Ferry operation. Matters of broad transportation policy, particularly those involving inter-Government relations, should be co-ordinated through the Provincial Ministry of Energy, Transport and Communications.

We will provide information and comment to Mr. Illing's Ministry as required.

I have not examined the Assessment closely but will do so in the near future.

Very truly yours,

C. Gallagher.
General Manager & Chief Executive
Officer.
British Columbia Ferry Corporation.

RUSSELL B. LONG, LA., CHAIRMAN

BERNARD E. TOLMADGE, GA.
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United States Senate

COMMITTEE ON FINANCE
WASHINGTON, D.C. 20510

MICHAEL STERN, STAFF DIRECTOR
GORDON B. GILMAN, CHIEF MINORITY COUNSEL

October 12, 1977

Mr. Andrew Hughes
State of Alaska
Department of Transportation
and Public Facilities
Pouch Z
Juneau, Alaska 99811

Dear Andrew:

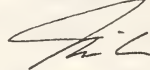
I received the copy of your Southeastern Alaska Transportation Study and was frankly impressed at the breadth of the undertaking. It appears that the study is quite comprehensive and should prove very valuable to future transportation planning.

Have you established dates, times and meeting places for your follow up meetings in late October? I would greatly appreciate your keeping me abreast of the developments in this regard.

Thank you for keeping me informed of developments here. If I may be of any assistance, please, just let me know.

Best regards.

Sincerely,



Mike Gravel

rec'd 10/21/77



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

OCT 14 1977

Mr. Andrew Hughes
State Project Manager
Southeastern Alaska
Transportation Study
Alaska Department of
Transportation and Public
Facilities
Juneau, Alaska 99802

Dear Mr. Hughes:

Thank you for your letter of September 30, 1977, which forwarded to us a copy of your "Preliminary Transportation Assessment" related to the Southeastern Alaska Transportation Study. Because of this Department's extensive land ownership in Alaska and inasmuch as we have several National Monuments and National Wildlife Refuges within southeastern Alaska, we too are interested in the transportation network and you may be assured of our willingness to participate with your Department in this study.

We appreciate the return call by Mr. Cahill of your staff advising us of the bureau and offices of this Department to whom you have distributed copies of the Preliminary Transportation Assessment. Initially, we would note for your information that the Alaska Power Administration is no longer in the Department of the Interior but is a part of the Department of Energy, effective October 1, 1977. Accordingly, you may wish to contact the Department of Energy and/or the Alaska Power Administration about their continued interest to participate in such studies.

The distribution which you have made to officials in the following listed bureaus is indeed adequate:

National Park Service	Fish and Wildlife Service
Bureau of Mines	U. S. Geological Survey
Bureau of Land Management	

Within the last six months, the Bureau of Outdoor Recreation has established an Area Office in Alaska for the handling of its programmatic functions there. To insure that that office

is apprised of your current request, we recommend that you send a similar transmittal to it. The address is:

Area Director - Alaska
Bureau of Outdoor Recreation
U. S. Department of the Interior
940 W. Fifth Avenue, ROOM 201
Anchorage, Alaska 99501

We also recommend that you supplement your mailing list to include the following listed offices of this Department and that you forward to them the same material sent us:

Secretary's Special Assistant
U. S. Department of the Interior
P. O. Box 120
Anchorage, Alaska 99510

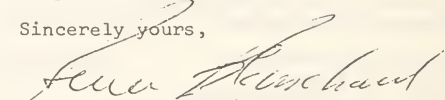
Area Director - Alaska
Bureau of Indian Affairs
U. S. Department of the Interior
Juneau Area Office
Box 3-8000
Juneau, Alaska 99801

Area Field Representatives
Southeastern Agency
Bureau of Indian Affairs
U. S. Department of the Interior
P. O. Box 3800
Juneau, Alaska 99802

We hope this additional information will assist you in securing appropriate technical assistance input to your study from the bureaus of the Department of the Interior.

As a concluding thought, we would request that your Department, when it completes the study and solicits comments on its proposed final report, send 14 copies of that report directly to this office. No distribution to any of our field offices need be made by you. Under this format, we will make the distribution and, following field reviews, a single coordinated Departmental response will be provided.

Sincerely yours,


Bruce Blanchard, Director
Environmental Project Review

P. O. Box 624
 Petersburg, Alaska 99833
 October 3, 1977

Andrew Hughes, State Project Manager
 S. E. Alaska Transportation Study
 Department of Transportation
 State of Alaska
 Juneau, Alaska 99811

Dear Mr. Hughes:

This is to register a strong objection to part of the "Preliminary Transportation Assessment" recently received.

Table II, Social Parameters, communicates a grossly understated disruption as a result of interior roads to Petersburg. In my opinion, changes in community character or identity would be very high rather than low. Alteration of life style would be high rather than low. Changes in accessibility would be very high rather than none. Disturbance of hunting etc. would be very high rather than medium.

I feel that the conclusions above somehow arrived at by Wilbur Smith, constitute a seriously inaccurate picture of the impact of interior road connections to Petersburg.

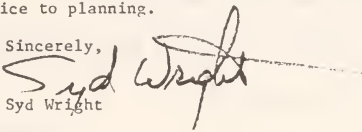
I, with others, feel that the total tone of the report favors road accessibility to island communities without weighing carefully the negative effects on those communities.

Petersburg presently has a low crime rate. It presently has a reasonably high per capita income. It has outstanding recreational opportunities. Its salmon streams are not degraded by the over use that comes with roads. Its cultural identity as Little Norway is well established.

Some communities should be left relatively isolated. Petersburg is one. Its unique attributes as an isolated community attract the kind of visitor we want to continue to attract. That visitor comes because of Petersburg's isolation and the unique experiences he can have here.

I realize I don't speak for all Petersburg residents but there are many who feel the way I do. At any rate fallacious conclusions such as the ones indicated above do a great disservice to planning.

Sincerely,


 Syd Wright

SW:mif

DON YOUNG
CONGRESSMAN FOR ALL ALASKA

COMMITTEES:
INTERIOR AND INSULAR
AFFAIRS
MERCHANT MARINE AND
FISHERIES

Congress of the United States
House of Representatives
Washington, D.C. 20515

WASHINGTON OFFICE
1210 LONGWORTH BUILDING
TELEPHONE 202/225-5765

DISTRICT OFFICES
115 U.S. FEDERAL BUILDING
ANCHORAGE, ALASKA 99501
TELEPHONE 907/273-1587
232 U.S. FEDERAL BUILDING
FAIRBANKS, ALASKA 99701
TELEPHONE 907/456-6949

October 7, 1977

Mr. Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study
Department of Transportation and
Public Facilities
Pouch Z
Juneau, Alaska 99811

Dear Mr. Hughes:

Thank you for your recent letter and a copy of "Preliminary Transportation Assessment" developed by Wilbur Smith & Associates for the Southeastern Alaska Transportation Study.

I have read the study and find it very well organized and comprehensive. Obviously marine and air transportation are the most critical to Southeastern Alaska.

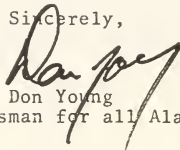
As far as the Federal government goes, the proposed legislation for the deregulation of airlines could have a crucial effect on areas with numerous small towns such as Southeast. I am keeping a close watch on this issue.

As for my suggestions, if there is any way to prevent strikes by employees of the Marine Highway system it should be investigated. This seems to be an annual occurrence during the peak season.

Again, I commend your transportation assessment and hope you will keep me informed of your progress.

Best regards.

Sincerely,



Don Young
Congressman for all Alaska

DY:ati

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901
Telephone: 907-225-6141

7700

Mr. Andrew Hughes
State of Alaska
Department of Transportation & Public Facilities
Juneau, Alaska 99802



OCT 7 1977

Dear Andy:

The "Preliminary Transportation Assessment" report transmitted by your letter 9/30 requesting comments is well done and very comprehensive. I have several suggestions:

Page 4, Interior Roads, item 4 describes the Ketchikan-Unuk River Road starting at the northern terminus of North Tongass Avenue. Figure 2 shows the location along the east shoreline of Revilla Island. Preferred instead is a route from the White River (Harriet Hunt) Forest Highway around the head of George Inlet and Carroll Inlet up Carroll River to Claude Point.

On pages 6 and 7, Ketchikan-Hollis Corridor, options 1 and 2 describe roads to Kasaan and Tolstoi Bay from Hollis. It is our preference that either of these locations be served by roads from Thorne Bay, the largest community on Prince of Wales Island. There is no purpose served by connecting Kasaan or Tolstoi Bay to Hollis. The ferry passes Kasaan to get to Hollis and can as well stop at Kasaan. Thorne Bay is not connected to the ferry except during the summer over some low standard road.

Another Prince of Wales ferry option omitted is mainline ferry stop at Coffman Cove to serve the north end of the Island. This would access Whale Pass, Naukati, El Capitan, LaBouchere, Port Protection, and Point Baker residents to the ferry after road connections are completed.

Thanks for the opportunity to review the documents.

Very truly yours,

J. S. WATSON
Forest Supervisor



University of Alaska, Southeast *myl*

JUNEAU-DOUGLAS COMMUNITY COLLEGE
P.O. Box 1447
Juneau, Alaska 99802

October 5, 1977

Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study
Dept. of Transportation and Public Facilities
State of Alaska, Juneau

Dear Mr. Hughes:

In response to your request for input regarding the "Preliminary Transportation Assessment" by Wilbur Smith & Assoc. I would like to comment on the methods used and the comparison parameters.

In general I would agree that the subjective assessment and consequent ranking from high to low was the most feasible in terms of budget and returns. However, there is the possibility of carrying out some socio-cultural research in those areas where new roads have been constructed to determine what, in fact, has occurred. I think that the community college system and the University of Alaska, Juneau, would have some students and faculty who could carry out some simple research along these lines as part of their learning-teaching-research work. Through the use of various survey techniques such as questionnaires, field observations, interviews, data collection and statistical analysis, the students would benefit educationally and the State would benefit from their production.

Sincerely,
Wallace M. Olson
Wallace M. Olson, Teacher
Social Sciences



Environment
Canada

Environnement
Canada

17202-1

Environmental
Management

Gestion
de l'environnement

Lands Directorate, Pacific Region,
Room 904, 1001 West Pender Street,
Vancouver, B. C.
V6E 2M7

November 16, 1977.

Mr. Andrew Hughes,
State Project Manager,
Southeastern Alaska Transportation Study,
Alaska Dept. of Transportation & Public
Facilities,
Box 3-1000
Juneau, Alaska 99811

Dear Mr. Hughes:

Re: Southeastern Alaska Transportation Study: Preliminary
Transportation Assessment by Wilbur Smith and Associates

Thank you for the copy of the above report; it will be of
value in our review of the proposed Haines Road-Alaska Highway reconstruction
proposal.

I am really unable to offer any substantive comments on the report
or the study as I am basically unfamiliar with the geographic area under
consideration.

Yours sincerely,

Ken Redpath

K. Redpath

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ALASKAN REGION
832 SIXTH AVENUE
ANCHORAGE, ALASKA 99501
TELEPHONE 272-5561



CT 81 1977

Mr. Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study
Department of Transportation and Public
Facilities
Box 3-1000
Juneau, AK 99811

Dear Mr. Hughes:

We have completed our review of the Preliminary Transportation Assessment prepared as a part of the Southeast Alaska Transportation Study. In response to the request in your cover letter, we have included the following for your use as you proceed to the next phase of the study.

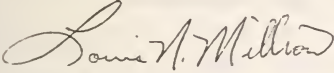
One of the major goals of the national airport system is to provide for safe, rapid, efficient, and energy effective transportation of passengers and goods by aircraft. You may wish to incorporate this concept into the statement of goals developed for the study.

We have also enclosed a copy of the Alaskan Region 10 Year Plan which lists the recommended improvements included in the National Airport System Plan (NASP) for the airports in the study area. The NASP identifies for Congress and the general public the airport development that we anticipate will be required to meet the present and future needs of civil aviation, the Postal Service and national defense.

After reviewing your Air Transportation paragraph on page 2 we suggest the heading of NAVAIDS under the Improve Air column be changed to Airport Lighting and Visual Aids. You will note in the recommended development that we have identified lighting and visual aids where appropriate. In most cases we have not included electronic navaids in our recommendations since the surrounding terrain at most of the locations will result in high instrument flight rule (IFR) minimums that would not improve service reliability to the community or result in an effective economic benefit and investment to the carrier or F.A.A. In the next phase of your study if the NAVAID column, as presently constituted is used we may be able to assist you by reviewing the data used to develop the following statistics:

1. Capitol Cost of 2.21, listed under Economic Impact in Table 1a.
2. Reliability, number of days per year system fails to perform, 10-15, listed under Table 2.

You can contact Mr. James Tanaka, Airports Division Chief for this assistance if you feel that it will aid your study.



LOUIS N. MILLION
Acting Director

Enclosure

Petersburg, Alaska
November 1, 1977

Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study

Dear Mr. Hughes:

I appreciate the opportunity to review the Southeastern Alaska Transportation Study. I am no longer the Alaska vice-president for the Federation of Western Outdoor Clubs. As a resident of southeast Alaska for over 33 years I am very interested in the development of an integrated transportation system for this area.

Unfortunately this study came just as I was leaving for the lower 48. From the perspective of Southern California, I am even more convinced than ever that we need a transportation system not dependent upon roads and the private automobile. Here, as is well known, the result has been deterioration in air quality, ever present noise and a reduction in the quality of life for everyone.

I am sorry I have been unable to attend any of the work shops. I did not know of the first one in Petersburg until it was over and the one on October 25 found me in Seattle.

I do have a few comments on the study.

In my opinion air and water transportation systems should be given the highest priorities. To me the land use, social and environmental impacts, the greater projected fuel consumption from the increased number of private automobiles attracted by road systems all weigh against a phasis on roads. Air and water transportation in general appear to require smaller capital investments. Some communities do not want road connections.

While roads will increase access for recreation, the quality will decline. This has certainly occurred on the Kenai and in the Anchorage area. If you can drive to an area, a hundred people got there before you.

I would also suspect that road systems will lead to increased logging activities and further decline in recreational quality.

Air Transportation

The development or rather re-establishment of a system of sea-plane facilities should be one of the priorities. We had the best

Ferry would no doubt be necessary it could replace one of the present mainline ferrys (Taku or Matanuska). This should result in lower capital costs and other capital investments such as the Petersburg-Kake road and the Sitka roads would not be needed. Studies of the Kake-Petersburg road have shown the environmental impact to be severe to disastrous. It is difficult therefore to see how in table 12 the impacts have been rated low to medium.

It is also difficult to see how the Social impacts can have been rated low, Table 13. The impact on the new second class city of Kupreanof does not appear to have been considered. Assuming the route chosen would traverse city limits, it would violate the city ordinance prohibiting roads. This would have a serious impact on city planning and create problems in enforcement of the ordinance prohibiting motorized land vehicles.

Ketchikan-Hollis corridor

1. Any road connection from Hollis to Hydaburg should not be allowed to cross the proposed Karta River Wilderness area proposal.

3. Considering the weather conditions likely to be encountered, one wonders whether a ferry of the Chilcat class could keep a weekly schedule to Hydaburg.

Juneau-Alaska Highway Corridor

4. A shuttle ferry between Luke Bay, Haines and Skagway would be the preferred option because of less severe land and environmental impacts. I would propose, however, that the mainline service not be terminated at Juneau because of the volume of vehicular traffic bound for the Interior. As noted earlier, I suggested reducing the mainline ferrys from 4 to 2.

Community Options

2. If all ferry service to Juneau were to operate from the Auke Bay terminal, improved surface transportation to Juneau at a reasonable rate is needed.

3. In the case of Yakutat, I would like to see another option considered. This is for subsidized air service. I would like to see a study of comparative costs of this against the other options. Weather conditions could seriously disrupt ferry service by a vessel of the LeConte class and the land and environmental impact of an Alsek road along with the invasion of a prime roadless area argue against a road route.

I believe this option needs to be considered also for some of the other small isolated communities such as Hydaburg, Hoonah,

and Pelican as well as Yakutat.

Airport Bridge, Ketchikan

Various locations of the bridge will result in different impacts. One proposal was for a bridge at Saxman, a road across Pennock Island and a bridge to Gravine with a road to the airport.

This location has several impacts that should be considered. To accommodate larger vessels passing through Tongass Narrows, either a high bridge or a drawbridge would be necessary. The capital investment would vary with the type of bridge.

A road across Pennock Island would have the same effect on Pennock Island as a road from Petersburg through Kupukonof to Kake. It would destroy the present life style and the character of a community dependent upon boat transportation. Pressure to develop the island will increase and the privacy and isolation will be lost. The increase in valuation of the property remaining on the tax rolls will be very hard on the property owners faced with yet another increase in taxes.

The impact on the traveler who must take a taxi or limousine to the airport needs to be considered. It will be the adaptation cost of this to the present limousine and ferry route.

Again, I regret very much that I have been unable to attend any of the workshops. I am interested, however, and will appreciate being advised of any future workshops and of the results of the planning efforts.

Sincerely yours
Deane H. Bush
 Deane H. Bush
 P. O. Box 71
 Petersburg, Alaska 99832

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
P. O. Box 1628, Juneau, Alaska 99802

8400

November 4, 1977

Mr. Andy Hughes, Transportation Planner
Southeastern Region
Department of Transportation and
Public Facilities
P. O. Box 3-1000
Juneau, Alaska 99802



Your File Number 300-E2419

Dear Andy:

We appreciate the opportunity to review and comment on the Southeastern Alaska Transportation Study, Preliminary Transportation Assessment. Our comments include those made by the Regional transportation planner, the Regional Economist, personnel from our fish and wildlife staff and a number of comments from the Forest Supervisors. The one exception is that the Forest Supervisor of the Ketchikan Area will submit a separate reply to cover additional items, some of which are site specific to Prince of Wales Island.

A number of Forest Service personnel, including representatives from each Forest Supervisor's engineering and land management planning groups have attended at least one of the public workshops held on each Area. Regional office personnel participated in the workshop held in Juneau. Workshop participation provided a means for individual input into the study since the agenda followed for the workshops did not require that the participants necessarily represent their employing agency.

We were also given an opportunity for review and comment on the draft of the preliminary transportation assessment following a meeting in your office on August 22, 1977, when much of the content was reviewed. Our comments following that meeting were sent to you on August 31. Those comments were submitted informally in order to honor the concept that, except for our participation, it was an "in-house" review.

Our comments are in two parts (1) those that can be generalized or require narrative format are included in this letter and (2) comments, changes, etc., which are suggested on tables or are otherwise specific are shown on copies of the transportation study enclosed.

Following are our general comments.

Page 2, bottom of page, also page 4, "Interior Roads". We think that it should be pointed out that all references to roads are understood

to be two-lane. As the document is written now, in some places the planned road is identified as two lane, in other places there is no identification. This comment extends to and includes item 11, page 8.

Page 10, "Social Parameters". Displacement of families and business can have serious economic repercussions, which might vary considerably with the type of transportation facility involved. Attrition of displaced businesses could occur as movement puts them in new production or market situations. This could cause losses in employment and income. On the other hand, movement could put business in more favorable situations and increase these parameters.

Page 11, "Economic Parameters". Discussion does not seem to consider beneficial effects of broadened transportation systems such as more efficient marketing systems. Transportation systems that move consumers to alternative market outlets or move goods to consumers at lower prices can have an affect of increasing real incomes.

Some transportation systems such as roads make new areas available to people who otherwise would not be able to use them. While this might modify the environment somewhat in absolute terms, it can provide a desirable opportunity for individuals who would otherwise not be able to use or experience that type of environment.

Page 12, the 4th paragraph gives a brief summary of types of fish and wildlife habitat which can be impacted by transportation system development. These impacts are compared subjectively in the tables following. However, nowhere is it evident, that a measure of the "people pressure" on the fish and wildlife resource itself is estimated and/or displayed.

Page 13, next to last paragraph, last sentence. The statement here "Road options generally offer the most convenience, while ferry options generally are much less convenient", appears to be a biased statement. It depends on the definition of the word, "convenience". Some people would say that to park your car on the ferry and sit back and relax is "convenient". It would appear that personal comfort (convenience) is enhanced whenever you can park your car and leave the driving to someone else. On the other hand, we do not dispute the point that to be able to get in your car and drive to another point such as Haines (from Juneau) is also convenient.

Page 14, "Land Use Impact", second paragraph, last sentence. In this specific instance it is stated that "systemwide and corridor options generally impact land uses to a greater extent than community options".

We do not of course, disagree with this statement but we would like to see the impacts described more finitely. This particular comment would apply generally to a number of places in the document where "impacts" are referenced.

Page 14, please refer to the second paragraph of the section on "transportation parameters", last sentence. We believe this statement should indicate that the preferred transportation options will be developed in coordination with the Forest Service. Perhaps this can be done by reference to the land management planning which the Forest Service is conducting on the Tongass National Forest and how the transportation options will be correlated with the on-going land management planning efforts.

Page 14, "Social Impact". Some consideration should be given to distributional effects. Gainers and losers related to any given alternative should be identified. The question of a limited number of people enjoying high quality resources should be weighed against more people being able to use such resources at the risk of some quality losses.

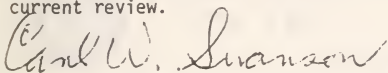
Page 15, last paragraph, next to last sentence. The draft working paper, "Marine Technology Implications-Southeast Alaska", page 20, indicates that the Boeing "Jetfoil" hydrofoil and the Hovermarine SES HM.5 both operate at low noise levels. This report states that air cushion vehicles (ACV) use aircraft type propellers for propulsion and therefore operate at a high noise level, while surface-effect-ships (SES) and hydrofoils operate at low noise levels.

Our specific and detailed comments will be found in two enclosed copies of the Southeast Alaska Transportation Study/Preliminary Transportation Assessment. The one marked number 1 has comments and suggested changes etc., on nearly every page and the one marked number 2 has comments on pages 4, 11, 12, and 14. A xerox copy of table number 17 from the study is also enclosed with comments and suggested changes. Two evaluation forms on the Juneau workshop and the Marine Highway System are also enclosed.

We would be pleased to continue to assist in this transportation planning effort in any manner which we can. I would like to reemphasize the importance of correlation between the transportation planning being done by the State of Alaska and the land management planning being done by the Forest Service in southeast Alaska. It is imperative that we work with each other and keep each other informed. A critical

point is the timeliness of your planning efforts. It is essential that the importance of each of your transportation options be conveyed to our land management planning group by the end of this month. If this is not done within this time pattern some of the transportation options may be foreclosed by the land management planning process.

Thank you again for the opportunity to be involved in the earlier review of the preliminary transportation assessment as well as this current review.

A handwritten signature in cursive script, reading "Carl W. Swanson".

CARL W. SWANSON
Regional Environmental Coordinator

Enclosures

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901
Telephone: 907-225-6141

7710
8400



Mr. Andrew Hughes
State Project Manager
Southeastern Alaska Transportation Study
Alaska Department of Transportation
P. O. Box 3-1000
Juneau, Alaska 99811

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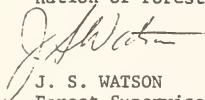
Dear Mr. Hughes:

We were pleased with the scope of your presentation of the Southeastern Alaska Transportation Study at Ketchikan. In conjunction with Regional Office comments, we would like to emphasize two areas of concern which were touched upon in the Preliminary Transportation Assessment and comments made at the Ketchikan public meeting.

Options 1 and 2 of the Ketchikan-Hollis corridor group would require a road across the mouth of the Karta River. Tentative decisions by January 1, 1978, as a result of the Tongass Land Management planning effort may invalidate these options. Additional alternatives which achieve the same objectives of these two alternatives using existing road routes and another ferry terminal in Kasaan Bay are possibilities that should be evaluated. Capital costs of these alternatives could be considerably less than the 51 miles for 57 million dollars of option number one.

During your presentation at the public meeting, we were particularly impressed with the aspect of the plan which provides for periodic review and continuation of the planning process to keep the plan current and viable. Much of the use of Forest Service mainline roads is by the public, connected either to communities or ferry terminals. Monitoring and analysis of use of these roads would facilitate evaluation of alternatives referred to above and provide a basis for determining appropriate agency road management.

We believe on-going analysis of these mainline roads will enhance coordination of Forest Service and State transportation system planning.


J. S. WATSON
Forest Supervisor

NOV 5, 1977

PAUL PERON
PO Box 1370
Sitka, AK 99835

ANDREW HUGHES
STATE PROJECT MANAGER
SOUTHEASTERN ALASKA
TRANSPORTATION STUDY
Box 3-1000
JUNEAU AK 99811

DEAR SIR:

AS I'VE BEEN ON VACATION ONLY NOW CAN I RESPOND TO THE PRELIMINARY TRANSPORTATION ASSESSMENT. LISTED BELOW ARE THE OPTIONS I CONSIDER BEST; AN EXPLANATION FOLLOWS EACH CHOICE.

SYSTEMWIDE OPTIONS

IMPROVE FERRIES: ADDITION OF SMALL SHUTTLE FERRIES OF THE LE CONTE CLASS. PROBABLY WOULD REQUIRE ~~4~~ 4 NEW ONES, ONE TO OPERATE IN OUTSIDE WATERS. THESE WOULD BE MUCH MORE ENERGY EFFICIENT, ~~AND~~ MORE RELIABLE, ~~THAN SKINNERS~~, AND PROBABLY SAFER THAN SKINNERS.

IMPROVE BARGE - CENTRALIZE SERVICE AT JUNEAU + KETCHIKAN

IMPROVE AIR - CENTRALIZE MAJOR JET SERVICE AT JUNEAU

AND KETCHIKAN, WITH SHUTTLE JETS OR TURBOPROPS TO OTHER COMMUNITIES THAT HAVE EXISTING STRIPS. SMALLER COMMUNITIES WITHOUT STRIPS SHOULD GET IMPROVED FLOATS RATHER THAN CONSTRUCTION OF MORE RUNWAYS. THESE ALSO WOULD OF COURSE BE SERVED BY FERRY. THE PRESENT EMPHASIS ON MAJOR JET SERVICE HAS LED TO GREAT INCONVENIENCE DUE TO THE FEW FLIGHTS AND POOR CONNECTIONS WITHIN SE.

CORRIDOR OPTIONS

SEA-TO-LAND

PRINCE Rupert: USE EXISTING ROAD + PORT FACILITIES, MUCH CHEAPER AND QUITE EFFECTIVE AT IMPROVING SERVICE WITH NO INCREASE IN LARGE FERRIES. THE NORTHERN TERMINUS SHOULD BE JUNEAU CITY HARBOR, WITH AUKU BAY BECOMING A MAJOR SHUTTLE FERRY TERMINUS. ONE ~~LARGE~~ ^{TRUCK CARRIES} FERRY BETWEEN AUKU BAY, ^{SITKA} HAINES, WITH LE CONTE CLASS SHUTTLES TO SKAGWAY, HAINES, YAKI, HOONAH, PELICAN, ^{GUST} ~~SITKA~~. USE EXISTING JUNEAU ROAD NETWORK, BUT UPGRADE ROAD TO AUKU BAY FOR TRANSFER CITY - AUKU BAY. THIS WOULD ELIMINATE EXPENSIVE LOOP AROUND DOUGLAS.

87

CORRIDOR OPTIONS

PETERSBURG - SITKA JUNO

SHUTTLE FERRIES - A SHUTTLE SERVING TENAKEE, ANGOON, SITKA
BAKE AND PETERSBURG WITH A LC-COINTE CLASS SHIP WOULD PROVIDE
FOR MOST LOCAL NEEDS

HOLLIS

KETCHIKAN - HOLLIS - A SHUTTLE FERRIE SERVING KETCHIKAN, KASAN, WRANGELL,
PETERSBURG, AND ONE SERVING KETCHIKAN, MET, KETCHIKAN, HYDABURG, AND HYDER
WOULD MEET THE LOCAL NEEDS IN THESE AREAS. BUS SERVICE
FROM HOLLIS TO KILNOCK + CRAIG SHOULD BE PROVIDED

COMMUNITY OPTIONS

JUNEAU - HERE THE CITY TERMINAL WOULD BE THE NORTHERN
TERMINUS OF THE MAINLINE KETCHIKAN - PRUD' HOMME RUN.
AN IMPROVED ROAD LINK TO AUK BAY WOULD PROVIDE
ACCESS TO THE NORTHERN SHUTTLE TERMINAL.

YAKUTAT - SHUTTLE FERRY SERVICE TO AUK BAY

CHICHIGO FERRY - TENAKEE SPRINGS AND GUSTAVUS WOULD
BE SERVED BY SMALL SHUTTLE FERRIES.

HYDER WOULD BE SERVED BY SHUTTLE FERRY FROM KETCHIKAN.

COMMENTS

ROADS - BUILDING MORE ROADS IN SE ALASKA IS UNWISE AND UNNECESSARY.
FERRIES ARE MORE ECONOMICALLY (LOWER CAP. EXPENDITURES)
ENVIRONMENTALLY AND AESTHETICALLY SOUND. NOBODY BUT
A SOMEWHAT FANATICAL HIGHWAY ENGINEER WOULD CONSIDER
ROADS SUCH AS SITKA - BARANOF WARM SPRINGS, YAKUTAT - HAINES
CUT OFF, OR JUNEAU - ATLIN. THE NEED SIMPLY DOES NOT EXIST.

CENTRALIZED TRANSPORTATION FOCUS - EFFICIENCY AND NON-DUPLICATION
OF EFFORT + FACILITIES ARE BEST SERVED BY CENTRALIZING
FERRY, BARGE, AND AIR FACILITIES AT PRINCE RUPERT, KETCHIKAN,

- 3 -

COMMENTS (CONT)

AND JUNEAU. THESE WOULD BE CONNECTED BY A MAINLINE FERRY ROUTE USING VESSELS SUCH AS THE COLUMBIA AND MALASPINA. NORTH AND SOUTH TONGASS LOOPS SERVING AS-HAINES-SITKA-PETERSBURG, ~~LAKEVIEW~~ AND WRANGLER, PETERSBURG, KTN, PRINCE RUPERT COULD BE SERVED BY TAKU-CLASS SHIPS AT GREATLY INCREASED FREQUENCY. SHUTTLE FERRIES BASED IN Auke Bay AND KETCHIKAN COULD SERVE ALL COMMUNITIES, WITH EXTENDED SERVICE TO COVER YAKUTAT, GUSTAVUS, TENAKKE, HYDABURG AND HYDER.

SHUTTLE FERRIES. MUCH TRAFFIC IS FOOT ONLY, AND THE SMALLER SHUTTLES BOUGHT SHOULD REFLECT THIS. THE OLDER, LARGER VESSELS SHOULD BE ABLE TO HANDLE THE VEHICULAR LOAD. IMPROVED BUS SERVICE IS NEEDED, ESPECIALLY IN JUNEAU FOR FOOT TRAVELLERS.

COSTS. THE PRIMARY COSTS OF THIS SYSTEM ARE FOR TERMINALS AND SMALL SHUTTLE FERRIES. DUMPING THE COLUMBIA WOULD ALSO BE A GOOD IDEA. SOME INCREASE IN SHIPPING COSTS DUE TO USING P. R. AS A TERMINUS MAY BE INCURRED.

BENEFITS. THE PRIMARY BENEFITS ARE FOR THE PEOPLE OF SOUTHEAST ALASKA, WHO WOULD GET GREATLY INCREASED SERVICE WHILE MAINTAINING COMMUNITY INTEGRITY, TOURIST ATTRACTION, AND BEAUTY.

Sincerely
Paul Peyton.

STATE
of ALASKA

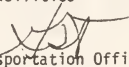
MEMORANDUM

TO: ☒ Andy Hughes
Transportation Planner
Department of Transportation and
Public Facilities

DATE November 2, 1977

FILE NO.

TELEPHONE NO.

FROM: Greg Thies 
Pupil Transportation Officer
Department of EducationSUBJECT: Review of Southeast Alaska
Transportation Study

The Department of Education (DOE) has reviewed the Preliminary Transportation Assessment, Southeastern Alaska Transportation Study, as transmitted with your September 29 memo to Commissioner Lind. Our review of this document is from the standpoint of DOE's pupil transportation responsibilities as set forth in Chapter 9, Pupil Transportation, Compiled School Laws of Alaska, and Chapter 27, Transportation of Pupils, Department of Education Regulations. In addition, I have attended the two workshops presented by the Department of Transportation and Public Facilities (DOTPF) in Juneau, and participated in the decision process used at the workshops to identify transportation improvements needed in Southeast Alaska.

As a general policy, the department encourages any improvement in freight and passenger transportation throughout Southeast Alaska that will directly benefit the school districts in the region and their employees. Southeast school districts, particularly the small city districts and Rural Education Attendance Areas, continually deal with a variety of freight and personnel transportation difficulties. The predominate transportation problems impacting these school districts are primarily adverse weather conditions, undependable arrival/departure schedules, and infrequent service. In some locations, on-time delivery of fuel oil, food and other freight to individual school buildings in small communities is, at best, a matter of luck. School districts are among the largest freight customers in the region.

The department is also very interested in the study's preliminary conclusions - that ACVs and hydrofoils may provide more dependable, cost-effective alternatives to conventional ferries on certain Southeast routes. Moreover, the department has devoted a considerable amount of time and effort to survey the present worldwide amphibious ACV market, as part of our efforts to meet the growing need for alternative pupil transportation systems in "Bush" Alaska. We are convinced that amphibious ACVs could be a cost-effective alternative to rural school construction in Western Alaska, and are happy that amphibious ACVs may also be practical for public transport utilization in Southeast Alaska, as well. There are obvious benefits to the DOE should amphibious ACVs be utilized on some Southern Ferry routes. Therefore, the department encourages further analysis of the use of amphibious ACVs as detailed in the Study's section, entitled "Description of Options".

With regard to the term "surface skimmers", as used to generally describe both amphibious and non-amphibious ACVs, as well as hydrofoils in the study, I would suggest that the term be clarified in future versions of the study. I understand that the term "surface skimmers", as used in Jane's World Book of Surface Skimmers, has been changed to differentiate between amphibious and non-amphibious craft. Judging from the information contained in the Preliminary Study, the potential value of amphibious ACVs as alternatives to conventional ferries is their ability to navigate in shallow tidal conditions and over marshes and beaches. Coupled with their higher operating speeds, this amphibious capability could greatly reduce total route lengths and "block time" delays due to sea-states, tides, etc.

In conclusion, the DOE encourages the work of DOT/PF, and their consultants, to improve the passenger and freight transportation system in Southeast Alaska. The department is especially interested in the further development of amphibious ACV transport systems as a supplement for or an alternative to conventional transportation systems. As previously stated, we hope that specific information generated by the study concerning amphibious ACVs can be used to increase our department's transportation data base and be used for making important management decisions.

cc: Marshall Lind
Earnest Polley
Ken Grieser

GT:jh

~~Preliminary Transportation Assessment~~
 Comments of Larry Edwards
 Box 2158 Sitka 99835

Our lifestyle and quality of life in Southeast has developed from our relationship to the region's geography. The key factor in that relationship is transportation. We are an isolated region composed of isolated communities. Many people have settled in Southeast because they were seeking a quiet life in a small, isolated community in wild country.

Transportation in Southeast has generally been consistent with that type of lifestyle. Our isolation is not total, and we wouldn't want it to be. Our transportation system has placed beneficial limitations on access of the outside world to us and on access of us to each other.

Although the transportation system needs to be changed to some extent, it is basically ideal for Southeast. We have economical transit at a relaxing pace by ferry. If time is a limitation air transit is available. Both are consistent with our quality of life. Road travel between communities is inconsistent with that quality. If we build roads between communities or become dependent on automobiles to get to remote ferry terminals our quality of life will take a nose dive. Southeast is one of the few places on this continent where man can escape major influence of the automobile on his life, but still live in a sizeable community.

The Preliminary Transportation Assessment did not include in its social & parameters the effects that road access between Southeast and the outside or between Southeast communities would have on quality of life as I have outlined it; yet that is the most significant

impact roads would have in Southeast.

I am particularly opposed to any road up the Stikine River. It is a beautiful and valuable resource as it is being used now, and a road in that drainage would spoil it. Any road on Baranof Island to a remote ferry terminal would be damaging to wildlife (through greatly increased human presence, and would have a detrimental effect on hunting.

Changes should be made in the Marine Highway System. ~~As~~ Primary emphasis should be on service within Southeast. For service to the outside, a run between Juneau and Prince Rupert would be excellent.

Service within Southeast should be by small, displacement hulled vessels. I feel for several reasons that surface skimmers should not be used. (1) A fast trip on a surface skimmer is ~~not~~ ^{NOT} consistent with our slower pace of life in Southeast. If I need to make a fast trip I can fly. (2) The large number of floating logs in Southeast waters would be an extreme hazard to hydrofoils, and air cushion vehicles are not suited to rough water and high winds we so often have here. (3) High speed surface skimmers are energy intensive.

Frequency of service to Gustavus, Pelican and other small communities should be increased. Other small communities, such as Tenakee Springs should be added.

We presently have mainline air access at five communities, and I think the Assessment should look at the economics and energy efficiency of that practice. Might we not get better intraregional air service by having mainline access at only one or two cities, with feeder service to the rest of the region? If that practice

~~works better for the ferry system~~ would it not also work better for the air system? The system could use Juneau for mainline service to Anchorage and Ketchikan for mainline service to Seattle. Many old timers say that the old system with mainline access at Arnette Island gave more direct routing and better service within Southeast than the present system.

The 727 is not well suited to the short hops it must make in Southeast, and it requires more runway and burns more fuel than aircraft we could use between communities. The Assessment should evaluate suitable aircraft and do an energy and economic evaluation of both types of systems.

In conclusion, both air and ferry service can be improved in Southeast. The roads which were proposed in the draft Assessment would be a catastrophe for the lifestyle we Southeasterners enjoy. None of the roads should be given further consideration.

Larry Edwards



Province of
British Columbia

Ministry of
Energy, Transport
and Communications

Parliament Buildings
Victoria
British Columbia
V8V 1X4
Telex 044-8135
TWX 610-937-6075
FACSIMILE TEL 387-5653

November 9, 1977

Mr. Andrew N. Hughes
State Project Manager,
Southeastern Alaska Transportation Study
State of Alaska
Department of Transportation and Public
Facilities,
Box 3-1000
Juneau, Alaska
99811

Dear Mr. Hughes:

It was certainly a pleasure meeting Mr. Umlauf and yourself on your recent visit to Victoria and we appreciate having the opportunity of commenting on your Southeastern Alaska Transportation Study.

A series of community public meetings to gather local comment and suggestions is a very difficult task, even under the best of circumstances, but your efforts seem to have been quite successful at this stage. We have also recently completed a round of community consultations, but on a much smaller scale, on transport matters in the coastal area and the consultants' report is now nearing completion. When this is available a copy will be provided for your information.

Some additional comments are as follows:

- Although the Assessment Report summarizes local suggestions and their impact, it would also seem beneficial to have:
 - (a) a background paper on present facility and service deficiencies.
 - (b) greater delineation of problems as to whether they are passenger or freight oriented.
 - (c) an analysis of passenger and freight movements to determine present and future volumes, O and D's, projected revenues and revenue shortfalls, etc.
 - (d) documentation on any special requirements for moving freight, i.e. bulk or refrigerated capacity.
- The above information would be of great assistance in evaluation of options, perhaps eliminating some from further consideration.
- Freight service needs are unclear as to whether requirements are for bulk barge, ro-ro barge, vehicle ferries, drop trailer carriage, reefer service, etc.

-2-

- Self-propelled coastal freighter service may be worth looking at.
- Disruptive community impacts are noted but what about the positive benefits derived (offsetting negative aspects) from better medical and educational services, lower passenger fares and freight rates, better mail service and intercommunity access?
- Also offsetting costs of airport development are benefits of wheeled aircraft over float in significantly lower operating costs, greater reliability of IFR and instrument approach systems, and greatly expanded daily operating times.

Undoubtedly you have already accounted for most of these points in your ongoing development of the transportation plan. For your further information in this regard, I have enclosed the following:

- (a) copy of recent letter re Stewart-Cassiar Highway.
- (b) extraction of comments re B.C. Ferries policy
- (c) press clipping on revised northern ferry services
- (d) extract of aircraft operating costs from our air study.

It is hoped this material may be of some use and if we can expand on any of it for you, please let us know. If extra copies of your reports are available when completed, we would appreciate receiving them.

Yours truly,



John R. Olmstead
Transport Planning Advisor
Planning & Research Branch
387-5743

JRO:JL

Province of
British Columbia

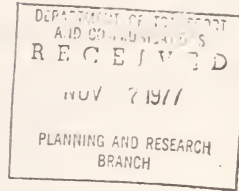
Ministry of
Energy, Transport
and Communications

Parliament Buildings
Victoria
British Columbia
V8V 1X4
Telex 044-8135
TWX 610-937-6075
FACSIMILE TEL 387-5553

ATTACHMENT (a)

OFFICE OF THE MINISTER

Mr. D. Barton
Traffic Manager
Alaska State Ferries
Division of Marine Transportation
Juneau, Alaska 99811



Dear Mr. Barton:

His Worship, Mayor Ian McLeod of the District of Stewart, British Columbia, has asked me to furnish you with an outline of the status of, and proposed plans for, upgrading Highway #37 in British Columbia.

I trust you will find the attached summary suitable for your information in respect to your deliberations regarding routing of the Alaska State Ferries.

I would further add that, at the present time, it is not the intention of the British Columbia Ferry Authority to serve the port of Stewart.

Yours sincerely,

Jack Davis
Minister
LGM:cdm
Enclosure

c.c. Dr. D. Kasianchuk

November 1, 1977

STEWART CASSIAR HIGHWAY

The present status and future plans for the Stewart Cassiar Highway are as follows:

HIGHWAY 37Highway 16 to Meziadin Junction (102 Mi.)

Mile 0 (Highway 16) - M 13: Under construction. Completion to Gravel 1978.

M 13 - M 57: Under design - construction scheduled for 1978,79,80.

M57 - M 93: Under construction - to be completed to Gravel 1978.

M 93 - M 102: Reconstructed good gravel surface.

Meziadin Junction to Stewart (40 Mi.)

Good gravel surface no major reconstruction proposed in the near future.

Meziadin Junction to Yukon Border (363 Mi.)

M 102 - M 344: North end of Lake - good gravel road (242 M)

M 344 - M367: Sawmill Pt. to Pinatree Lake - reconstructed and paved. (23 M)

M 367 - M 391: Pinetree Lake to Cassiar Junction - under construction. Completion to gravel 1978. (24 M)

M 391 - M 396: Cassiar Junction to Good Hope Lake - under construction - to be completed to gravel 1978 (15 M)

M 396 - M 445: Good Hope Lake to Blue River - paved. (39 M)

M 445 - M 465: Blue River to Yukon Border - under design - reconstruction proposed 1978-79. (20 M)

As sections are completed to gravel surface, paving contracts will be called, possibly in 1979 and 1980.

The ultimate will be to have the entire Highway 37 and the connection to Stewart paved but depending upon budget restrictions, federal assistance etc. the date is quite indeterminate at this time.

First as to freight:

It is the policy of B.C. Ferries to carry passengers and vehicles which can be driven on and driven off the ferry. Trucks, including truck-trailer combinations obviously qualify as they do on the Strait of Georgia crossings. But drop trailers do not. As they are not accompanied by a tractor and driver they are not mobile in themselves and therefore call for longshoremen support at either end.

B.C. Ferries does not employ longshoremen. As an extension of the highway it can only cater to self-propelled vehicles and vehicle combinations. And it is our intention to continue to adhere to this policy on "The Queen of Prince Rupert" when it runs north from Tsawwassen to Keysey Bay, Ocean Falls and Prince Rupert this winter.

Secondly as to scheduling:

It is true that the new coastwise service which began on October 3, 1977 will be suspended as of May 1, 1978. This is because the "Queen of Prince Rupert" must revert to its customary summer schedule, sailing north from Keysey Bay to Prince Rupert during the summer of 1978.

Once the new dock facilities are complete at Port Hardy, however, it will be possible to stop, both ways, at Ocean Falls, winter and summer. So the suspension of the service will be confined to four summer months only. It will be for the period May 1, 1978 to September 30, 1978. Thereafter calls will be made at Ocean Falls year round.

For \$1 million

305

RivTow awarded Islands contract

The B.C. Ferry corporation has awarded a contract worth \$1 million to RivTow Straits Ltd. to provide a twice-weekly barge service for cars and trucks between Prince Rupert and Masset on the Queen Charlotte Islands.

The contract does not make provision for passenger service.

Ken Stratford, traffic Manager for the B.C. Ferry Corporation, said today the service to start will accommodate 15 cars and 10 trucks on a flat barge pulled by a tug and it should begin the first week of November.

He said the contract, which was put out to tender, will extend for one year to allow the corporation time to study and plan future ferry service and terminals to the Queen Charlotte Islands.

However, he said "this interim service does not make provisions for passengers."

Presently the only transportation between the Islands and the mainland is provided by air services.

The fares are subsidized and the rates are based on the Gulf of Georgia crossings.

Stratford said the rate for a car one-way across Hecate Strait will be \$27 and trucks will be charged \$3.30 per foot. "It is about three times the fare to cross the Gulf of Georgia."

He said that RivTow intended to put a covered barge on the run when it completed a ramp facility in Masset.

The B.C. Ferry Corporation six weeks ago also put a weekly service from Prince Rupert to Port Simpson and Kincolith out to tender, but Stratford said no decision has yet been made and he didn't know when it would be announced.

He added that decisions on the new ferry runs have been delayed because of the recent B.C. Ferry workers strike.

Stratford said the corporation intends to put a full ferry service, including passenger provisions, to the Queen Charlottes when a terminal site has been chosen and built on the Islands.

He said bookings for the new system will be handled by the Prince Rupert B.C. Ferries office and a toll free line would be set up to Masset.

Cecil Cosulich, president of RivTow, said from Vancouver this morning, all fares will be collected by B.C. Ferries and the company will be paid a flat fee.

He said the new covered barge should be put into service in two or three months.

RivTow has been operating a weekly tug and barge service to Queen Charlotte Islands for general freight. The rate for a passenger car one-way was about \$100 on the Northland Navigation run.

*Prince Rupert (B.C.)
Daily News - Oct. 25/77*

H. 1001

5.0 AIR ROUTE LINKS

This section determines and evaluates existing and potential air route links (sectors). The air route links are based upon the selected community pairs and the demand estimates determined for 1975 and 1980 between the selected points. The large number of possible air route links and the variety of aircraft types which could be used in subsequent development of possible network system options necessitated the development of a simple route link evaluation model. The elements of the model and its application are briefly described below.

5.1 Air Route Link Model

A model was designed broadly to evaluate the economic and operating characteristics of air services on alternative air route links. The basic economic considerations included in the model are air service revenues and costs derived from each air route link. The operational considerations include aircraft trip frequency and passenger load factors as measures of level of service. The evaluation procedure firstly equated costs and revenues required to show the "breakeven" relationship between these two variables for each aircraft type. Secondly, passenger load factors and trip frequency were determined based on the revenues/costs relationship which had been established. The aircraft type on the air route link which resulted in the lowest passenger load and the highest trip frequency in relation to revenue/cost equation was selected as the optimal aircraft for the specific air route link. The selected aircraft, however, may not be the optimal aircraft for the route or route network when the individual links are later aggregated. The evaluation was conducted for both 1975 and 1980 selected community pairs. The revenues and costs considered were 1975 dollars in order to be consistent with air traffic figures.

The model has three distinct components, as follows:

(a) Air route Characteristics

(b) Air route Economics

(c) Air Route Operational Analysis

(a) Air Route Characteristics

The air route link characteristics include actual and expected air passenger traffic (1975 and 1980), route segment distance and definition of suitable types of aircraft. The expected air passenger traffic on the route segment has been discussed in the previous section. Where possible, route segment distances were calculated via IFR airway and air route mileages.

The type of aircraft used on a particular route segment was determined by two methods. The first method was to assign the aircraft type most predominantly used on the existing route link being examined, if air service is already provided. This presents a base case example which can be cross checked later with air carrier records to confirm the model's applicability. Since a variety of aircraft types are used by air carriers on some routes, the aircraft type with the highest recorded hours for the route license was selected as the "base case" aircraft type. The second method was to assign a number of aircraft types which could be expected to operate on such a route link, given the route distance, expected air traffic and other operating parameters. These selected aircraft were predominantly twin-engine aircraft capable of operating IFR on a scheduled basis.

(b) Air Route Economics

The route economics provide an analysis of revenues and costs for each route segment. The basic premise was to develop a simple method of summarizing route link economics in order that comparisons between aircraft types and alternative routes could be readily evaluated.

Revenues only took into consideration passenger revenues due to the difficulty of incorporating cargo, mail and other forms of revenue into the model. It was also assumed that route economics, in most cases, would be determined by air passenger demand and other sources of revenue are considered as marginal revenue. Air passenger revenue for each route link was developed to express the relationship between fares and flight distance, annual passenger volume and whether the aircraft operated is float or wheel equipped.^{1/}

Two regression analyses were conducted to show this relationship on existing air route segments; one for wheeled aircraft, the other for float aircraft. The resulting regressions are as follows:

$$\begin{aligned} &\text{Route Segment Airfare (AF)} \\ &= \text{Fixed Station Costs} + \text{Distance} \times \text{Annual Passengers} \end{aligned}$$

$$\begin{aligned} &\text{Wheeled Aircraft } r^2 = .9549 \\ &(\text{AF}) = \$10.9469 + .1257(\text{Route Distance}) - .000144 \\ &\quad (\text{Annual Passengers}) \end{aligned}$$

$$\begin{aligned} &\text{Float Aircraft } r^2 = .9281 \\ &(\text{AF}) = \$14.5670 + .1827(\text{Route Distance}) - .000076 \\ &\quad (\text{Annual Passengers}) \end{aligned}$$

Exhibits 5.1 and 5.2 illustrate graphically the relationship between airfare and distance. It can be seen from the scatter plots that existing fare structures do have a strong relationship with the route sector distance, for both wheeled and float aircraft.

Total passenger revenues were then calculated for both existing and proposed air route links by multiplying the annual passengers by the airfare. The total annual passenger revenue is critical to the economic analysis portion of the model, since it assumes that revenues are fixed with regard to an upper limit

^{1/} Air fares for water-based aircraft are typically higher due to higher operating costs.

EXHIBIT 5.2
WHEEL AIRCRAFT
AIRFARE -- DISTANCE

57.00

48.00

39.00

30.00

21.00

12.00

-0.0

70.00

140.0

210.0

280.0

350.0

D.I.S.T.A.N.C.E

VARIABLE 1

TIONS PLOTTED: 29

NUMBER OF OBSERVATIONS PLOTTED: 29

104

SCATTER PLOT

FARE

AGAINST

DIST

340.0

270.0

200.0

130.0

60.00

10.00

5.000

18.00

31.00

44.00

57.00

70.00

FARE

NUMBER OF OBSERVATIONS PLOTTED: 25

EXHIBIT 5.3

FLOAT AIRCRAFT

AIRFARE -- DISTANCE

- 33 -

105

~~by the passenger volume and fare.~~ Since as pointed out earlier the model equates revenues and costs (e.g. breakeven relationship) the maximum costs are also dictated by the revenue limit.

Costs in the air route economic evaluation are primarily the block hour operating costs of the aircraft. These costs in turn affect the trip frequency and passenger load factor for each aircraft type, if costs are assumed to equal the revenues. The infrastructure route costs and air carrier's return on investment are not incorporated into the model.

Some 28 aircraft types (including float configuration) were considered in evaluating air route link costs. The operating parameters of aircraft cruising speed, block flying time (including an allowance for take-off and landing time) and seating capacity, were determined for each of the aircraft types. Block hour operating costs were also developed for each aircraft type. Operating costs were divided into three cost categories:

(i) Marginal Direct Operating Costs (MDOC): (VARIABLE COSTS)*

These costs include flying expenses such as flight crew salaries and expenses, fuel and oil costs, landing fees and other flying expenses directly related to operating the aircraft. Direct maintenance expenditures are also included in this cost category.

(ii) Total Direct Operating Costs (TDOC): (FIXED COSTS)*

These total direct operating costs include the marginal direct operating costs (MDOC) as well as capital depreciation, rental charges, insurance, interest and other fixed costs associated with aircraft ownership.

(iii) Total Direct and Indirect Operating Costs (TDOC + IOC):

Over and above the total direct operating costs, the other indirect costs include administration expenses, station and maintenance costs, passenger handling, advertising and other overhead expenses.

The three different cost categories are introduced to illustrate the effect of various cost levels on air route economics. Ideally, total direct-indirect operating costs should be considered in a route analysis since a route, to be economically viable, should include all long run fixed and variable costs.

However, on certain air route links, air traffic demand and the revenue hours of flying may not be sufficient to allocate total costs to a specific route link. In these cases, the aircraft ownership costs and the indirect operating costs may be proportioned in varying degrees to several route links.

The three cost categories also indicate the respective levels of revenue short fall which would be required in terms of internal cross subsidization or external subsidy to make certain air routes economically viable. Those air route links which cannot be operated at marginal direct operating costs should not be considered for air service under normal circumstances.

The direct operating costs for each aircraft type were calculated from Aviation Statistics Centre information, manufacturers' data and air carrier records. In order to develop aircraft operating costs which could be compared, attempts were made to select comparable aircraft utilization, capital depreciation periods, and other variable factors which affect operating costs. Indirect costs are difficult to assign to a particular aircraft or air route. A review of air carrier records indicated that indirect costs increase as the aircraft size increases.^{2/} The larger aircraft require additional overhead items (e.g. passenger catering, etc.) which increase the indirect costs. Based on the experience of air carriers, a block hour cost per seat was assigned to each aircraft type. Single-engine aircraft were assigned an indirect cost of \$1.50 per seat; twin-engine aircraft up to 20 seats \$2.50 per seat; twin-engine aircraft over 20 seats and pressurized aircraft \$4.00 per seat; and jet aircraft some \$6.00 per seat.

^{2/} There are two general categories of indirect expenses; Traffic Responsive and General. The Traffic Responsive indirect expenses vary with traffic, aircraft type and the frequency of flight. The functions represented in this category are: passenger service, traffic servicing, aircraft servicing, reservation and sales, advertising, and publicity. General indirect expenses are incurred in support of the system operations and are common to all aircraft types and routes. Three functions represented in this category are: general and administrative expenses, ground property and equipment maintenance and depreciation.

Exhibit 5.3 shows the aircraft operating costs per block hour for the selected aircraft. Where appropriate, both wheel and float configuration operating costs are also shown for the same aircraft types. It should be noted that, while these costs are representative of 1975 for most aircraft types, for some newer aircraft types more recent cost data were used. It should also be pointed out that these are operating costs broadly representative of the various aircraft types and may not represent actual cost experiences of individual air carriers.

EXHIBIT 5.3

AIRCRAFT OPERATING COSTS
(dollars per hour)

(Leave To Note Ann 36)

<u>AIRCRAFT</u>	<u>MARGINAL DOC^{1/}</u>	<u>TOTAL DOC^{2/}</u>	<u>DOC + IOC^{3/}</u>
Cessna 172	60	65	75
Cessna 172 F	90	100	115
Cessna 180/185	85	90	105
Cessna 180/185 F	110	120	140
Cessna 206	85	95	110
Cessna 206 F	115	130	150
DHC 2 Beaver	90	95	110
DHC 2 Beaver F	125	135	155
DHC 3 Otter	120	140	160
DHC 3 Otter F	145	170	195
Piper Aztec 23	100	110	125
Piper Navajo 31	110	130	165
Beech 18	110	130	165
BN Tri Islander	100	150	190
Grumman Goose	145	175	220
Grumman Mallard	195	225	280
Beech 99	145	170	215
BN Islander	140	225	280
DHC 6 Twin Otter	140	180	225
DHC 6 Twin Otter F	185	240	300
Swearingen Metro	190	335	420
Douglas DC 3	220	250	340
Fairchild F-27	500	550	745
DHC Dash 7	485	650	880
Convair 640	540	605	815
HS 748	440	530	715
Fokker F-28	550	750	1,125
Boeing 737-100	890	1,200	1,800

(Note: F = Float Configuration)

^{1/} Variable Costs^{2/} Variable plus Fixed Costs^{3/} Total Costs

Tyee Airlines Inc.



November 3, 1977

TO:	Mr. Mort Cook
FROM:	Mr. Cook
DATE:	11/3/77
RE: DUTIES TO:	ATC - H. Cook
	John

Mr. Mort Cook
ALASKA DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
Pouch 6900
Anchorage, Alaska 99502

Dear Sir:

The following recaps our views of the transportation needs in the Ketchikan-Prince of Wales Island area. Tyee Airlines, Inc. is a commuter airline and charter operation. Tyee serves the Prince of Wales Island communities of Craig, Klawock and Hydaburg on a scheduled basis of every two hours during daylight. Community acceptance of our scheduled service has been gratifying and the communities have come to depend on our scheduled service.

We, at Tyee, see the transportation needs of Prince of Wales Island as two fold.

1. Air commerce
2. Surface transportation - roads and ferry system

Air Commerce - The developing and continuing transportation needs will always depend to a great extent on the airplane. Presently, sea planes provide the great percentage of passenger movement to and from Prince of Wales Island and Ketchikan which serves as a hub for travel to other parts of Alaska and the Lower 48. This is the basic concept that developed the efficient network of commuter airlines in the continental United States. We see the same forces at work here in Alaska.

The State of Alaska must develop a strong non-partisan transportation commission to govern the routes of the developing commuters throughout the State. If Alaska does not do so, the Federal Government will continue to dominate the Alaska Air Commerce scene. To have our problems and growth determined by a federal bureaucracy 3,500 miles from Alaska would be a mistake.

Concerning the communities of Prince of Wales Island, air traffic will continue to develop as the communities grow and the native corporations implement their growth and business plans. The air commerce growth will be limited unless the communities develop airports of sufficient size to handle medium sized commuter aircraft. These aircraft will be far superior to the costly float aircraft now used in the area. The advantages are greater speed, larger cargo capacity and increased passenger comfort and safety. As industry continues to develop, the cargo capability of aircraft serving our communities will become increasingly

RADIO FREQ. 4696 ■ PHONE (907)225-6118 ■ P.O. BOX 8331 ■ KETCHIKAN, ALASKA 99901




important for parts, services and some movement of finished product to the hub city of Ketchikan for shipment by air freight to markets in the south. Safety wise, the modern twin engine aircraft will provide the margin needed to lessen the dependency on float equipped twin aircraft, the cost of transportation could be reduced.

The above is a sketch of some of the items we see as being of great importance to the communities involved. Air commerce of the type we have mentioned should be controlled by the State. Airport development should be a top priority.

Surface Transportation - Surface transportation will become more efficient as the new ferry becomes useable and a road system is developed to interconnect the Island communities. The terminal at Hollis will become a major shipping point for heavy freight and traffic. It is felt that to connect the communities with ferry service directly would be a costly mistake because of the long, rough travel distance involved to run the ferry around the Island. A good network of roads connected to an east side of the Island terminal, in this case Hollis, seems to be an efficient means of handling surface transportation.

I think in both instances, air commerce and surface transportation, it is important for the State to develop a clear policy consistent with local design.

Sincerely,


Mike Woodson
President

MW/db

STATE
of ALASKA

MEMORANDUM

TO: ☐ Mr. Andy Hughes
 Transportation Planner
 Southeastern Region
 Department of Transportation and
 Public Facilities

DATE November 4, 1977

FILE NO.

TELEPHONE NO.

FROM: Ernst W. Mueller *Ernst W. Mueller*
 Commissioner
 Department of Environmental
 Conservation

SUBJECT: Southeastern Alaska
 Transportation Study

In accordance with Circular A-95, the Department of Environmental Conservation has reviewed the above mentioned project. In this regard, we have no objections.

Environmental concerns should be coordinated with Deena Henkins, Southeastern Regional Environmental Supervisor and Dave Sturdevant, Ecologist with the Department of Environmental Conservation. The addresses are:

Deena Henkins
 Regional Environmental Supervisor
 Department of Environmental
 Conservation
 Pouch OA, M/S 1802
 Juneau, Alaska 99811
 (Phone: 364-2148)

Dave Sturdevant
 Terrestrial Programs
 Department of Environmental
 Conservation
 Pouch O
 Juneau, Alaska 99811
 (Phone: 465-2663)



DEPARTMENT OF THE ARMY

ALASKA DISTRICT, CORPS OF ENGINEERS

P.O. BOX 7002

ANCHORAGE, ALASKA 99510

REPLY TO
ATTENTION OF

MAY 1977

NPAEN-PR-EN

Mr. Andrew Hughes, Manager
S.E. Alaska Transportation Study
Alaska Department of Transportation
and Public Facilities
P.O. Box 3-1000
Juneau, Alaska 99811

Dear Mr. Hughes:

We have reviewed the Preliminary Transportation Assessment of the South-eastern Alaska Transportation Study by Wilbur Smith and Associates and have no comments or recommendations to offer.

Thank you for the opportunity to review the document.

Sincerely yours,

JAY K. SOPER
Chief, Engineering Division



Government of the Yukon Territory

BOX 2703, WHITEHORSE, YUKON Y1A 2C6 TELEPHONE 403 667-5811 TELEX 0368260



OUR FILE
YOUR FILE

November 8, 1977

Mr. Andrew Hughes
State Project Manager
Southeastern Alaska
Transportation Study
Department of Transportation
and Public Facilities
Box 3 -- 1000
Juneau, Alaska
99811

Dear Sir:

Southeastern Alaska Transportation Study

This is to acknowledge your letter of October 24th.

I have examined the Study and it appears to me that the comparison parameters are quite complete however it would be useful if the Transportation Parameters were expanded to include a projection of through traffic (north and south bound) densities. This is of particular interest to us because of the affect on the Haines and Klondike Highways.

The category of Local Economy in the Economic Parameters might be expanded to include "Construction Employment Impact". I assume what is shown in the study is the employment impact after development is completed. People are always interested in the short term benefits particularly if there is an unemployment problem, therefore it is suggested that construction impact might be of value.

I suppose the evaluation process must determine what is the best transportation system to suit southeastern Alaska and what this would do to the overall goal of connecting that part of the state to the northern region by the best possible method. East west connections are also important to coastal communities now dependent on sea service and the objective in this respect is to obtain access to the continental highway system.

One of the goals of the Department of Highways and Public Works is

. . . . /2

114 "YUKON - HOME OF THE KLONDIKE"

"To develop and maintain transportation systems for economic development and to enhance the quality of life for Yukon residents and others to a high standard." To achieve this goal objectives are:

1. To improve the quality of Territorial highways so as to improve safety and to reduce transportation costs to all highway users.
2. To expand the highway network to areas of economic and recreation potential.

The foregoing may be relevant to your assessment of the Transportation Study.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'K. J. Baker', with a long horizontal flourish extending to the right.

K. J. Baker
Director of Highways
and Public Works

WINGREN

ENTERPRISES

2729 TONGASS AVE.
SUITE 410
(907) 225-4365
P.O. BOX 5197
KETCHIKAN, ALASKA 99901

RECEIVED
DEC 6 1977
TRANSPORTATION PLANNING

23 NOVEMBER, 1977

MR. DONALD HARRIS
COMMISSIONER, DEPARTMENT OF TRANSPORTATION
JUNEAU, ALASKA

DEAR MR. HARRIS

I WAS UNABLE TO ATTEND THE OCTOBER 26 TRANSPORTATION WORKSHOP MEETING WITH STATE OFFICIALS. THIS I REGRET. I ALSO REGRET THAT THERE WAS APPARENTLY SO LITTLE SUPPORT FROM THE FEW PEOPLE PRESENT FOR THE BRIDGE LINK TO PENNOCK AND GRAVINA ISLANDS. IT WOULD APPEAR THAT THOSE PRESENT HAVE NOT STUDIED THE SIDE BENEFITS OF THE BRIDGE LINK TO THE TWO ISLANDS. A BRIDGE OR CAUSEWAY TO PENNOCK ISLAND, FROM SOMEWHERE IN THE AREA OF SAXMAN WOULD BE MUCH MORE THAN JUST ANOTHER BRIDGE OR ROAD. IT WOULD CREATE THE FIRST BREAKWATER OF A MUCH NEEDED SMALL BOAT HARBOR, STARTING AT SAXMAN AND EXTENDING THE LENGTH OF TONGASS NARROWS. IT WOULD MAKE ACCESSABLE A WONDERFUL RESIDENTIAL AREA ON PENNOCK ISLAND.

A SECOND, HIGH LEVEL BRIDGE, UNDER WHICH THE LARGEST SHIPS COULD PASS, SPANNING THE NARROW CHANNEL BETWEEN PENNOCK AND GRAVINA ISLANDS, WOULD MAKE GRAVINA AND THE KETCHIKAN INTERNATIONAL AIRPORT MUCH MORE ACCESSABLE THAN NOW. IT WOULD MAKE LAND FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL USE READILY AVAILABLE AND USABLE. HEAVY INDUSTRIAL DEVELOPMENT, SUCH AS FISH PROCESSING PLANTS, COULD BE LOCATED AT OR NEAR THE AIRPORT. THERE WOULD BE ROOM FOR OTHER INDUSTRIAL DEVELOPMENT WITHOUT GOING TO THE ENDS OF OUR EXISTING ROADS, OR BUILDING NEW ONES.

VERY TRULY YOURS

Paul Wingren
PAUL J. WINGREN

CC: SENATOR ROBERT H. ZIEGLER SR.
REPRESENTATIVE ORAL FREEMAN
REPRESENTATIVE TERRY GARDINER
KETCHIKAN GATEWAY BOROUGH ASSEMBLY
GREATER KETCHIKAN CHAMBER OF COMMERCE
KETCHIKAN DAILY NEWS

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Province of
British Columbia

Ministry of
the Environment

Parliament Buildings
Victoria
British Columbia
V8V 1X5

DIRECTOR OF LAND MANAGEMENT

January 3, 1978

Mr. Andrew Hughes
State Project Manager
Department of Transportation and Public Facilities
Southeastern Region
Box 3-1000
Juneau, Alaska
U.S.A. 99811

Dear Mr. Hughes:

Re: Southeastern Alaska Transportation Study

Thank you for your letter of October 24, 1977 addressed to Mr. Tom Cottrell and which was passed to me for response.

The Southeastern Alaska Transportation Study appears to be an ambitious planning study incorporating a wide range of considerations. The six comparative parameters recognized in the Preliminary Transportation Assessment should provide a comprehensive evaluation of pertinent variables. Comments regarding the study from the Land Management Branch are confined to two areas.


The first comment relates to the methodology used for determining levels of overall impact associated with various transportation options. Tables 1a, 1b and 1c provide impact evaluations which are based upon both subjective and objective measures which utilize a wide range of measurement units. The methodology used for weighing and amalgamating data of this type must be carefully considered and monitored. Although the methodology used for arriving at the final impact values for the various transportation options is not defined in the report, care should be taken to ensure that it is acceptable to all participants in the study.

The second comment relates to those options which require the construction of highway routes through British Columbia. In the event of the adoption of any of these options adequate time would be required for the British Columbia Ministry of Highways to obtain the necessary easements for construction purposes over Crown land from the Land Management Branch, Ministry of the Environment.

.....2

It is hoped that the above comments are of some use and that the State of Alaska will be successful in evaluating and implementing a successful transportation system in Southeastern Alaska. I look forward to receiving further information regarding transportation development in your state as it comes available.

Yours truly,

A handwritten signature in cursive script, reading "Wallace Bergen".

WALLACE BERGEN
Research Officer
Land Management Branch

WB/ln

V. Division of Marine Highway Systems Questionnaire

At the end of each workshop, participants were presented with the proposed ferry scheduling for the winter and the summer. They were advised that the Department was considering tariff increases averaging 8% this coming summer.

Participants were then asked to complete a questionnaire and write any suggestions and additional comments on the bottom and back side. The questionnaire and a summary of the results are presented on the following pages.

ALASKA MARINE HIGHWAY

The management of the Alaska Marine Highway would appreciate your answers to the following questions. Please ~~leave your completed~~ questionnaire with one of the individuals conducting the meeting. If you wish, you may return the questionnaire by mail, to Sherman D. Burton, Traffic Manager, Alaska Marine Highway, Pouch R, Juneau, Alaska 99811.

1. Currently, during winter months, one vessel operates from Seattle, leaving Friday evening and passing through Ketchikan on Sunday morning. A second vessel operates from Prince Rupert making two round trips through Southeast Alaska each week. This vessel leaves Prince Rupert each Tuesday and Friday. Such a schedule means vessels are passing through Ketchikan, northbound on Sunday morning, from Seattle, as well as Tuesday and Friday afternoons from Prince Rupert. These vessels arrive in Haines on Sunday, Monday and Wednesday.

Please circle one of the following:

- a. I like the winter schedule from Prince Rupert as it is.
 - b. I would prefer a Wednesday; Saturday departure from Prince Rupert. (This would allow Ketchikan arrivals on Wednesday, Saturday and Sunday with Haines arrivals on Friday, Sunday and Monday.)
 - c. I don't like either a or b.
 - d. I have no definite preference.
2. Please circle the answer which best describes the situation:

Passenger rates are:	a. much to high,	b. slightly high,
	c. about right,	d. too low
Rates for cars are:	a. much to high,	b. slightly high,
	c. about right,	d. too low
Rates for large vehicles are:	a. much to high,	b. slightly high,
	c. about right,	d. too low
Cabin rates are:	a. much to high,	b. slightly high,
	c. about right,	d. too low
Should food and beverages be:	a. higher than on shore,	
	b. same as on shore, or	
	c. less than on shore	
 3. Should there be a greater reduction in rates during the winter? YES NO
 4. I would be willing to travel without a cabin if passenger and vehicle rates could be lowered. YES NO
 5. I would prefer fewer vessels operating to Seattle and more operating from Prince Rupert. YES NO
 6. Should the Marine Highway operate to any port south of Prince Rupert? YES NO
 7. If rates are to be raised, I would prefer that commercial rates were raised rather than passenger and passenger vehicle rates, even though the cost of goods might increase slightly. YES NO

COMMENTS: _____

Questionnaire Summary

QUESTION	MET	THB	K/C	WRG	KET	JUN	SIT	KAK	PET	HYD	ANG	TEN	PEL	SKG	YAK	HNH	TOT
Winter Schedule																	
(a)	4	0	1	4	4	1	2	1	7	3	0	1	2	1	0	1	3
(b)	5	4	2	1	2	7	3	2	2	0	0	0	0	5	0	0	3
(c)	7	3	2	1	3	3	3	4	2	2	0	0	0	4	1	1	3
(d)	15	6	10	7	10	11	10	21	11	17	11	15	13	5	3	9	17
Passenger Rates																	
(a)	9	1	2	4	3	7	1	3	2	4	0	4	0	4	0	1	4
(b)	10	5	4	4	5	3	7	8	4	3	3	1	2	7	0	1	6
(c)	12	6	3	5	11	12	9	16	15	7	6	6	11	3	2	8	13
(d)	0	0	2	0	0	0	0	0	1	0	0	0	0	0	1	0	
Rates for Cars																	
(a)	11	4	2	6	4	8	3	13	7	7	2	4	4	9	0	2	8
(b)	15	6	2	6	8	6	7	11	11	2	4	2	6	4	0	4	9
(c)	3	3	5	1	5	5	6	3	3	5	3	0	1	1	2	3	5
(d)	0	0	1	0	2	2	0	0	1	0	0	0	1	0	1	0	
Rates for lg vehicles																	
(a)	10	4	2	1	3	3	1	14	3	5	0	4	4	5	0	2	6
(b)	12	5	0	2	2	5	7	4	1	3	3	0	4	4	2	4	5
(c)	6	1	5	6	6	4	5	5	11	2	4	1	4	3	0	2	6
(d)	1	1	1	1	5	7	1	3	4	0	0	0	0	0	1	1	2
Cabin Rates																	
(a)	19	5	4	3	1	4	2	10	2	6	4	3	1	1	0	3	6
(b)	12	4	2	1	5	5	5	6	10	4	1	3	5	6	0	4	7
(c)	3	3	2	8	9	9	7	11	9	4	4	0	6	8	1	2	8
(d)	0	0	1	0	3	2	0	0	1	0	0	0	0	0	1	0	
Food & Beverages																	
(a)	1	3	2	3	4	4	2	3	3	1	0	1	0	0	2	0	2
(b)	20	10	4	10	11	14	14	13	18	9	4	6	8	14	1	5	16
(c)	8	0	4	0	3	0	1	12	1	4	5	0	5	1	0	6	5
Greater Reduction																	
(Yes)	21	10	10	10	13	13	15	21	13	12	8	9	5	11	0	9	18
(No)	6	2	1	2	5	5	3	7	7	4	2	1	7	3	3	1	5
No Cabins Lower Rates																	
(Yes)	19	10	7	2	10	10	5	17	10	14	5	11	8	8	1	6	14
(No)	9	3	5	10	8	8	12	8	11	2	3	0	3	5	3	3	5
Fewer to Seattle More Rupert																	
(Yes)	16	7	4	7	10	10	5	6	8	10	3	3	0	11	1	1	10
(No)	12	4	5	6	9	9	12	17	10	7	7	5	10	2	3	8	12
Operate South of Rupert																	
(Yes)	16	6	9	11	12	12	13	15	19	10	5	7	4	1	4	7	15
(No)	10	5	2	0	9	9	4	7	2	8	5	3	5	11	0	2	8
Raise Commercial not Private																	
(Yes)	15	5	6	8	14	14	9	12	7	9	9	9	8	6	0	5	11
(No)	8	7	4	2	6	6	7	10	13	6	1	0	3	6	4	3	8

PRELIMINARY TRANSPORTATION ASSESSMENT

Southeastern Alaska Transportation Study

Prepared for Alaska Department of Transportation and Public Facilities as a part of the Southeastern Alaska Transportation Study by Wilbur Smith and Associates, with assistance from Homan-McDowell Associates and R & M Consultants, Inc.

SOUTHEASTERN ALASKA TRANSPORTATION STUDY
POTENTIAL TRANSPORTATION ALTERNATIVES

A Preliminary Transportation Assessment

Purpose of Study

The purpose of the Southeastern Alaska Transportation Study is to develop a regional transportation plan consisting of air, land, and marine transportation improvements preferred by residents of Southeastern Alaska. The plan will direct the State in developing needed transportation improvements within the limits of available State resources and funding for the region.

Community Workshops

It was recognized from the beginning that early, effective and informed participation by local elected officials, community agencies, interest groups and area residents was essential to the preparation of an acceptable plan. Consequently, a program of community workshops was instituted to involve community members in the Study. The first series of workshops identified transportation improvements recommended for study by the people.

Forty-one transportation improvements of an intercommunity nature were identified for preliminary study in the Transportation Assessment Report. The transportation options which involve intercommunity transportation were analysed by the study team for anticipated costs, benefits, and adverse impacts associated with each alternative. This report presents the results of this analysis in the form of comparative matrices so that community members can identify the relative impacts and costs of each alternative.

A second series of workshops will be held in October to give the State further direction in developing a regional transportation plan. Community members are asked to: (1) evaluate the list of options and decide which options should be studied in more detail, (2) identify goals and objectives important to them in the consideration to meet their transportation needs, and (3) direct the State in developing transportation systems which will best serve the needs of the region. The objective of the second set of workshops is to determine how the people want to be served and to identify what kinds of systems are needed to provide the transportation service.

Preliminary Transportation Assessment

The major purpose of the preliminary transportation assessment is to inform and involve community members in the development of a transportation plan for Southeastern Alaska. This report presents information about each alternative so that the people can compare the benefits and the costs of each option and determine the kinds of transportation improvements which are needed and they feel can best serve the region.

Regional Transportation Issues

The transportation options preferred by community participants will be organized into several system plans for further testing and evaluation. These system plans will address regional transportation issues relative to each transportation mode. Community participants are requested to provide direction to the State relative to these issues, which include:

Air Transportation-Other than upgrading existing regional air facilities, the primary issue in Southeastern Alaska is whether to develop a system of seaplane facilities or a system of wheelplane facilities (landing strips) in each community. Although both types of facilities would be beneficial, it is doubtful that funding will be available to develop both in each community. Several options have been developed in the assessment report to identify characteristics of each type of system to address this issue.

Marine Transportation-Marine transportation is expected to remain the primary method of transportation in Southeastern Alaska in the near future; however, the ferry system has several inherent problems including ageing vessels, escalating construction and operating costs, and limited existing ferry capacity.

Transportation options in this report describe several alternative plans to utilize the ferry system relative to four major service issues: (1) whether to maintain the current ferry fleet, add more vessels to expand capacity, or replace the existing fleet with hydrofoil or ACV systems; (2) maximize ferry capacity in Southeastern Alaska by minimizing connections to the State of Washington, or maximize capacity to the outside; (3) maximize ferry capacity in Southeastern Alaska by selected construction of road links to replace links in the ferry system; and (4) expand the ferry system to serve all communities in the region.

Road Transportation-The road alternatives under consideration fall into three principal categories: (1) those simply providing a connection between two communities; (2) those with the capability of reducing the length of ferry vessel time required to service a community and (3) those presenting the potential of reducing or eliminating mainline ferry service links in the existing ferry system. Road transportation issues describe the extent that roads should be used in Southeastern Alaska: (1) whether roads should be constructed to gradually replace as much of the ferry system links as possible, and (2) develop road systems to connect isolated communities or to replace shuttle ferry service.

Barge-Freighter Transportation-The States role in marine freight service is to support individual communities in developing adequate freight transfer facilities. The major issue related to freight services is whether freight services should be direct from Seattle as they are now or services should be centralized at major distribution points in the region.

Description of Options

A list of transportation projects was developed for study in response to public recommendations received during the initial series of public workshops. Since the study has limited resources, only those projects of a regional nature involving improved access between communities were considered in the comparison. Proposed projects involving travel within a community and projects directed towards operations of private carriers were documented for consideration in the Department of Transportation and Public Facilities annual programming process. A list of public concerns will be transmitted to private operators for their information. With some modification, all alternative improvements under consideration are those recommended for study by workshop participants.

A total of 41 improvement options were identified for comparison, including: 19 marine systems options, 18 options involving construction of roads, and four air systems options. To facilitate a comparative analysis, the options were grouped into three major categories based upon their impact on travel in the region, within a particular corridor, or regional connections to a specific community. The comparison matrix includes twelve systemwide projects which affect travel throughout the region, sixteen corridor projects involving system modifications in a corridor, and thirteen community projects which modify access to a particular area.

Systemwide Options - Systemwide options were identified for four major systems operating in Southeastern Alaska: the ferry system, the barge-freighter goods movement system, new highways and regional air transportation. Systemwide options are illustrated in Figure 1.

Improve Ferries - Ferry service options involve the improvement of service frequency or travel paths. These options include:

1. More ships - Expansion of the current vessel fleet with two additional ships of the Matanuska or Columbia class which would operate between Seattle and Skagway with the current number of stops enroute.
2. All surface skimmers - Replacement of all existing ferry ships with new air cushion or hydrofoil vessels. Candidate technologies would be examined to determine the most appropriate vessel type(s). Surface skimmers would provide increased speed capabilities but would have varying load capacities. The existing route and service structure would be maintained.
3. Some surface skimmers - Replacement of existing feeder ferry and Sitka mainline ferry with air cushion or hydrofoil vessels. All mainline ferries would be routed between Petersburg and Juneau to bypass Sitka. The feeder and Sitka mainline service would be replaced by two new vessels which would operate between Petersburg, Sitka, Juneau, Haines, Skagway and the smaller communities currently served by the feeder ferry.

Improve Barge - Barge freighter options involve the centralization and expansion of services to improve service frequency to smaller communities and to minimize freight cost differential between communities. The options are:

1. Expand Service - Extend mainline barge service to Haines and Skagway from its present terminus in Juneau.
2. Centralize Service - The proposed system would include mainline barge service to major Southeast Alaska ports and smaller feeder freight services to other communities from Ketchikan or Juneau as transshipment points.

Interior Roads - Roads to the interior highway system through Canada are proposed to identify costs and benefits of increased access to the region.

1. Petersburg (Stikine - Iskut River Road) - Approximately 109 miles of road would be built from the existing terminus of Mitkof Highway to the Cassiar Highway in British Columbia along the Stikine and Iskut River valleys. About 34 miles of road would be constructed in Alaska and 75 miles in Canada. This option would also include restructuring the ferry system using Petersburg as the focus of services. Three mainline ships would operate between Petersburg and Skagway and one mainline vessel would travel between Petersburg and Ketchikan. Service to Prince Rupert and Seattle would cease.
2. Wrangell (Aaron Creek - Iskut River Road) - About 60 miles of Alaskan highway and 75 miles of Canadian highway would be constructed between Wrangell at the terminus of Alaska Avenue and the Cassiar Highway in British Columbia. The Marine Highway System would also be restructured to operate three vessels north of Wrangell and one vessel south of Wrangell to Ketchikan. All service to Prince Rupert and Seattle would be terminated.
3. Petersburg/Wrangell (Stikine - Iskut River Road) - This option would include the same interior road connection as the Petersburg option but with an additional road connection between Wrangell and Petersburg. The Marine Highway System would be modified to include three ships operating between Petersburg and Skagway and one ship between Wrangell and Ketchikan.
4. Ketchikan (Unuk River Road) - An access road would be constructed from Ketchikan at the northern terminus of North Tongass Avenue along the Unuk River Valley to the Cassiar Highway. The road would include 86 miles of pavement in Alaska, 67 miles of pavement in Canada and a shuttle ferry across the Behm Canal. The existing ferry system would be changed to terminate three of the four mainline vessels in Ketchikan.

Improve Air - The systemwide air systems options in Southeastern Alaska propose the improvement of facilities in the region for improved community access and mode reliability.

1. Airstrips - This option includes the construction of five gravel airstrips located at Angoon, Kake, Hydaburg, Tenakee and Pelican to provide land based regional air terminals for all major communities in the region. Each runway would be built to about 2,500' x 150' with access road and parking, similar to the existing Klawock airport.

2. Floats - The second air concept includes the use of float facilities or airstrips where appropriate to provide complete regional air service to each community. Improvements would be made to existing airstrips, such as the Haines airport, and existing float systems in Hydaburg, Metlakatla and Sitka to provide a standard air terminal, shelter and public facilities in each community.
3. Nav aids - Includes the installation of directional navigation aids for scheduled routes and the installation of runway lighting at Skagway, Haines, Klawock, Hoonah and Gustavus.

Corridor Options - Transportation improvement options for four main travel corridors have been identified for comparison: Ketchikan - Seattle, Juneau - Alaska Highway, Petersburg - Sitka - Juneau, and Ketchikan - Prince of Wales Island. The options, shown in Figure 2, describe transportation modifications which have the potential for improvement of travel within these corridors with some effect upon travel in other parts of the region.

Seattle - Ketchikan Corridor - Options in the Ketchikan - Seattle corridor involve the location and operation of the southern terminus of the ferry system and its impact on travel in the region. The options include:

1. Seattle - The first option proposes using all four existing mainline vessels between Seattle and Skagway. The net result is an increase in the number of vessel trips between Ketchikan and Seattle and a decrease in the number of trips between Ketchikan and Skagway.
2. Bellingham - Moving the southernmost port to Bellingham from Seattle is proposed in the second option. The Columbia and Malaspina would operate from Bellingham and the Taku and Matanuska would continue to operate from Prince Rupert.
3. Prince Rupert - The third option proposes the operation of all four mainline vessels from Prince Rupert with no trips to ports south of Prince Rupert. This operation would increase the number of weekly vessel trips between Ketchikan and Skagway.
4. Ketchikan (Unuk River Road) - This road options was described as a part of the systemwide options. Because it has both systemwide and corridor characteristics, it is included in both categories to facilitate the comparison process.

Juneau - Alaska Highway Corridor - Juneau - Alaska Highway options involve modifications to the corridor to improve access to the interior road system and to improve ferry capacity of sections south of Juneau.

1. Skagway - Haines - This option includes 71 miles of new road between Juneau and Skagway on the east side of Lynn Canal and 22 miles of new road between Skagway and Haines.
2. Skagway - The construction of a two lane road between Echo Cove and Skagway on the east side of Lynn Canal with a shuttle ferry operating between Dayebas Creek and Haines. A new shuttle ferry terminal would be constructed at Dayebas Creek.

3. Haines - Option 3 proposes a road/ferry link between Juneau and Haines on the west side of Lynn Canal, and a shuttle ferry between Haines and Skagway. Approximately 60 miles of new road would be constructed between St. James Bay and the Haines Highway. A new shuttle ferry terminal would be constructed adjacent to the Glacier Highway between Eagle Beach and Berners Bay, or the Auke Bay Terminal would be used.
4. Haines - Skagway - Option 4 is similar to Option 3 with the addition of a road link between Haines and Skagway to replace the shuttle ferry.
5. Taku River - The Taku River Road option proposes the construction of a two lane roadway between Juneau and Atlin, British Columbia, to include 45 miles of Alaska road and 68 miles of Canadian road. A bridge or shuttle ferry would be required to avoid the Taku Glacier.
6. Shuttle Ferry - A shuttle ferry between Auke Bay, Haines and Skagway would replace existing mainline service in Lynn Canal. All current mainline service would terminate at Juneau City, except Sitka service which would terminate at Auke Bay.
7. Road & Ferry - This option proposes the replacement of existing ferry services between Juneau, Haines and Skagway with a shuttle ferry operating between Echo Cove, Mud Bay at Haines, and Skagway. New ferry terminal facilities would be required at Echo Cove and at Mud Bay.

Petersburg - Sitka - Juneau Corridor - Options in the Petersburg - Sitka - Juneau corridor propose various methods of serving Sitka without the necessity for mainline ferry vessels to operate west of Baranof Island.

1. Shuttle Ferry - The replacement of existing mainline service to Sitka with a shuttle ferry operating between Petersburg, Sitka and Juneau is proposed in this option. The service would require two new feeder ferry vessels of the Le Conte class.
2. Sitka Road 1 - This option proposes the construction of a road between Sitka at the terminus of Halibut Point Road and Rodman Bay and a new ferry terminal at Rodman Bay. The option involves approximately 33 miles of new road.
3. Sitka Road 2 - Option 3 proposes the construction of 18 miles of new road between Sitka at the terminus of Sawmill Creek Boulevard and Warm Springs Bay. The construction would include a new ferry terminal at Warm Springs Bay, about 2 miles of highway tunnel, and extensive snow sheds adjacent to the tunnel.

Ketchikan Hollis Corridor - Options in the Hollis - Ketchikan corridor involve modifications to service for Prince of Wales Island from Ketchikan.

1. Prince of Wales Island Roads - The Prince of Wales Island Road option involves the addition of 51 miles of new road on the island to provide new service to Hydaburg and Kaasan from the present ferry terminal at Hollis.

2. Mainline Ferry - This option proposes to serve Prince of Wales Island with mainline ferry service from a new terminal at Tolstoi Bay. The road system proposed in Option 1 with an additional 7 miles of road from Hollis to Tolstoi Bay is included in this option.
3. Hydaburg Ferry - Option 3 involves the extension of the existing Chilkat service to Hydaburg at a frequency of one trip per week. A new ferry terminal at Hydaburg is included in the option.

Community Options - Options are being compared for service modifications to improve access to eight community areas as shown in Figure 3. These options also impact service on regional transportation systems to some degree.

1. Juneau City (Juneau) - This option proposes the use of the Juneau City Ferry Terminal for all ferry operations in Juneau. This option includes the cessation of services at Auke Bay.
2. Auke Bay (Juneau) - All ferry service to Juneau would operate from the Auke Bay Terminal.
3. Yakutat Ferry (Yakutat) - Shuttle ferry service using a Le Conte class vessel would be provided to Yakutat once per month. The service would require extensive modification of an existing vessel or purchase of a new vessel to conform to U.S. Coast Guard regulations for ship operation in open waters.
4. Alsek Road (Yakutat) - Approximately 67 miles of new Alaska Highway and 59 miles of new Canadian highway would be constructed to connect Yakutat from the present terminus of Yakutat Highway to the Haines Highway.
5. Mainline Ferry (Metlakatla) - The current Chilkat service from Ketchikan to Metlakatla would be replaced by mainline service currently operating between Ketchikan and points south. The option would include reconstruction of the Metlakatla ferry terminal.
6. Annette Road (Metlakatla) - Mainline ferry service would be provided to Metlakatla from Annette Bay. The option would involve construction of 15 miles of new road and a ferry terminal at Annette Bay.
7. PEC Road (Chichagof Island) - Ferry service to Pelican would be replaced by a road between Pelican and Hoonah. Approximately 48 miles of new road would be constructed.
8. Hoonah Airport (Chichagof Island) - The existing 2,800' gravel runway would be extended to 3,500' to accommodate the larger aircraft used in the region. The Pelican - Hoonah Road would be constructed for airport access from Pelican.
9. Chichagof Ferry (Chichagof Island) - Current shuttle ferry service would be extended to Tenakee Springs once per week and to Gustavus once per month using the Le Conte.
10. Airport Bridge (Ketchikan) - The existing shuttle ferry service between the mainland and Gravina Island would be replaced by a two lane bridge to serve the airport.

11. Kake Road (Kake) - A 44 mile, two lane road between Kupreanof and Kake would be constructed to replace the existing feeder ferry system to Kake. The project would include a shuttle ferry of the Abanaki class between Kupreanof and Petersburg.
12. Hyder Ferry (Hyder) - A feeder ferry of the Le Conte class would serve Hyder once per month.
13. Wrangell/Petersburg Ferry (Wrangell - Petersburg) - A shuttle ferry between Blind Slough on Mitkof Island and Wrangell is proposed to connect these two communities. The project includes a new ferry terminal at Blind Slough and an additional berth at the existing ferry terminal at Wrangell. A Chilkat class passenger ferry would provide the connecting service.

Comparison Procedures

The process adopted for this planning study involves the comparison of alternative transportation proposals on the basis of various measurable characteristics. In this sense, measurability extends beyond quantifiable elements to include qualitative and subjective judgements.

In order to provide coverage of the full range of critical issues and interests, a comprehensive set of comparative parameters has been developed. This list has been modified as necessary to conform with the availability of data required for the measurement process. While it would be possible to conduct special data surveys and to perform more sophisticated analysis than was permitted by the study schedule and budget, it is felt that the results are adequate for the intended purposes.

The comparisons permit an understanding of the consequences of each alternative so that a screening process may be applied. Emerging from this screening process will be an identification of the most desirable and acceptable alternatives.

Alternatives passing the screening process will be more fully developed and a more detailed analysis will then be conducted. This iterative (and continuing) study procedure permits modifications in the comparative structure as the emphasis of the planning process changes as well as refinements in the information used in the process. As these refinements are made and the sequential study process continues, further review with the affected communities is anticipated.

Comparative Parameters

Of necessity, the comparison process includes a number of technical aspects which require explanation for those unfamiliar with the particular analytical details. While every attempt has been made to simplify this process and thereby enhance understandability, it was felt desirable not to compromise the process excessively and thereby lose the value the parameter measurements have in permitting informed judgements.

Transportation improvement alternatives are compared using five primary categories composed of several measurement parameters. The categories describe important characteristics of each option, including: operating characteristics, system costs, land use effects, social and behavioral impacts, and environmental impacts of each option. The characteristics each parameter measures are described in the following paragraphs.

Some aspects of each option cannot be objectively determined with the current data base, and some inherently cannot be quantified. These comparative parameters, however, are important to identify major differences in each system. Such parameters have been evaluated subjectively using a five unit ranking scale of very high, high, medium, low and very low. When the option has no effect upon the parameter, none has been indicated.

Level of Service - Level of service describes how closely the proposed system accommodates travel desires and travel needs of each community. Four categories of service level are included in the comparison matrix: Reliability which is measured by performance, capacity, and safety of each option; mobility which describes travel time and service frequency; amenity which includes the quality and comfort of the service; and convenience which describes the serviceableness provided by the option.

Performance comparisons are made using the number of days in each year that each option can be expected to breakdown based on historical data. A subjective evaluation of possible improvements in the future has also been included. These comparisons are the most accurate representation of reliability from existing information.

Capacity is measured in terms of the current ferry system service to the area, since this mode is the existing major form of transportation in Southeastern Alaska. Each transportation option is compared by the change in capacity associated with the option. Also included is the resultant number of existing ferry vessels released for other service by the alternative.

Safety is expressed in terms of total accident experience, property damage experience, and freight loss or damage. Since existing accident records are not consistent for all modes and incomplete for some modes, a subjective comparison has been made.

Mobility parameters have been expressed in terms of average passenger or freight journey time, average passenger delay time, and service frequency for specific journey links. Journey and delay time are compared using the change in existing travel time on trips to Seattle and within the region. A dash is used where there is no change from existing travel times.

Service frequency is identified for specific travel links by the number of trips per week possible with the particular service being compared. When several modes are used in completing a trip by a particular option, the frequency indicated is the most restrictive on the link. For example, a road-ferry combination has a service frequency equal to that of the ferry frequency. Service frequency of regional air systems includes only the scheduled flights available between points.

Amenity parameters are subjectively evaluated using quality of service and comfort criteria. Quality of service includes personal services available to the passenger such as food service, restrooms, and sleeping quarters. Comfort includes features such as seating, leg room, ability to choose ones travel environment, and choice of activities enroute.

Convenience comparisons are made with objective evaluations of waiting time and travel time to terminals. The values which are compared are average times for the particular corridor or area included in the transportation option, and may vary significantly with specific communities. Service availability and the probability of transferring are subjective evaluations using average conditions for each mode of each corridor.

Land Use Impacts - Land use impacts of each transportation option are defined objectively by the number of acres directly influenced by the option, and subjectively by identifying potential conflicts between the option and land use policies.

Direct impacts include the acreage occupied by transportation facilities, which necessitate a complete change in land use, and adjacent land which becomes unsuitable for current land uses. Some highway options which traverse existing roadless and undeveloped area, for example, precludes the use of land in right-of-way as wilderness. Conformity of transportation options to land use policies is described by the acreage available for upgraded use and subjective evaluation of the level of conflict between the option and future land use policies.

Transportation Parameters - Transportation parameters define the capability of each option to operate within the physical and operating constraints of the region's service structure. Transportation parameters are measured subjectively using criteria for the potential of mode coordination, development coordination, technical feasibility, and jurisdictional coordination. Mode coordination defines the capability of implementing the option without major conflicts in travel to other points of the system. Development coordination measures the capability of the option to change services with changing needs of the region, and jurisdictional coordination describes the necessity for a number of agencies or governments to be involved in the operation or construction of the option. Technical feasibility identifies the ease of implementation of each option in Southeastern Alaska.

Social Parameters - Social parameters define the impact of each option on the people and lifestyles in Southeastern Alaska. These parameters are measured objectively for the number of families or businesses directly displaced by the option, and subjectively for changes within the corridor or community served by each option.

Direct displacement of families or businesses involves those which must be moved for construction of the option. For each option, the probable number has been identified.

The total of eight disruption parameters have been identified which describe specific aspects of community lifestyle which may be changed. The subjective comparison identifies the probable degree of impact without classifying the impact as beneficial or disadvantageous to the community.

Three parameters describe the impact of each option on social objectives of the region, including impacts upon cultural, historic, and wilderness areas; and effects upon economic and social intergration of the area.

Economic Parameters - Economic parameters are identified by two main groups; the direct costs of constructing and operating each option, and the indirect costs of each option on the local economy. Direct operating costs have been disaggregated into costs of travel, crew, administration, and maintenance, and capital costs are broken down into land acquisition costs, construction, and equipment costs. Indirect costs have been developed for the impact on property taxes and the change in land valuation for each option. These parameters have been evaluated objectively. Additional subjective evaluations have been developed for the impact of each option on employment, retail sales, employer payrolls, and development potential.

Operating costs were identified based upon cost per passenger for both existing and proposed systems. The costs are based upon average operating costs over a system for the sytemwide options, or over a particular link in the system for corridor or community options. Since per person costs can vary significantly for different sections of the system or for different travel modes, the per person cost of travel for both existing and proposed systems were developed so that differential costs can be directly compared.

Capital costs were developed to include costs for development of new systems and capital investment required to retain existing systems. For example, several of the existing ferry vessels must be replaced within the next decade, and those options which retain these existing ships must include the replacement cost, in current dollars, of each vessel.

Environmental Parameters - The environmental parameters identify the major types of potential impacts to the natural ecosystems of South-eastern Alaska. This analysis is centered on the conspicuous elements of those ecosystems, but it is not totally limited to the dominant or important species. Data on all native plant and animal species have been weighed and incorporated in the overall impacts. The following list of data categories were used to analyze impacts resultant from the various transportation options under study: Air Quality, Soils/Geology, Landscape/Aesthetics, Noise/Vibrations, Ecology and other natural resources. Each component is evaluated for construction related impacts as well as the longer term impacts associated with the operation of the facility.

Ambient air quality in the study area is excellent, except possibly in the immediate vicinity of several municipalities in the southern part of the region. No serious problems of exceeding levels are anticipated although localized inconveniences, particularly during construction, may occur. A subjective evaluation has been used for air quality, although future, more detailed analyses should use tons per year for individual airsheds.

The major potential problems associated with soils and geology are erosion and instability of slopes. Mud, snow and rock slides are common in certain areas of the region and are a potential problem, particularly for some road options.

The major portion of Southeastern Alaska is roadless and undeveloped and does not have extraneous noise or vibration pollution. Future man-induced noise vibration from several of the options will occur to both wild animal receptors and humans. The distance from the future source to the receptor and obstructions will determine how much of the original noise will be heard.

Among the dominant individual vegetative communities are beach fringe, sounds and bays, mud flat, estuaries, spruce/hemlock conifers, riparian areas, fresh water wetlands (including open water, swamp, marsh, muskeg, etc.), pioneer or disturbed areas, alpine meadows, avalanche or talus slope areas and glacier. The total acreage removals of plant community and wildlife habitat are calculated for an overall evaluation of the impact of options on the natural systems.

Many important species of fish and wildlife exist within Southeastern Alaska. The primary types of discernable habitat included in comparison include: big game feeding/wintering areas, fresh water and anadromous fish spawning gravel and nursery habitat, raptor (bald eagles and other large birds of prey) nesting sites, fresh water aquatic areas, migratory corridors, threatened or endangered species habitat, mollusk/shellfish beds and molting areas, marine mammal whelping areas, waterfowl concentration areas for nesting and migration, seabird nesting colonies/estuaries and non-game habitat. The effect of removing or otherwise modifying any of these habitats has been compared subjectively.

Collision deaths or injuries to animals are usually an unavoidable consequence of expanded transportation facilities. A primary determinant of the trend in how much such collisions will occur is the approximate number of vehicle miles to occur as compared to the ambient number of vehicle miles.

The utilization of natural resources, such as fuel, provides a measure of efficiency of the system. The increased or decreased fuel consumption has been included in the comparison matrix for all options.

Comparison of Transportation Options

The comparison process developed for the Southeastern Alaska Transportation Study involves the comparison of potential transportation projects on the basis of several measurable system characteristics. Several significant characteristics of each project are summarized in Table 1 to illustrate major differences of each project. Tables 2 to 19 list all comparisons of each project.

Level of Service Parameters

Ferry capacity in Southeastern Alaska is most significantly improved by terminating all southbound ships at Prince Rupert or constructing roads to the interior from Petersburg or Wrangell. Each of these options produces more than 40 per cent more passenger and vehicle capacity. The addition of two more ships, or the options in the Juneau-Alaska Highway corridor increase ferry capacity by about 20 to 30 per cent, and the Sitka Road options increase ferry capacity by about 10 per cent. Operating all ships from Seattle as the southern terminus, reduces existing ferry capacity by about 27 per cent. Community options generally do not change ferry capacity in the region, but service to the specific community is improved significantly.

Ferry frequency is improved most significantly by replacing all ships with hydrofoil or air cushion vehicles, or construction of roads to the interior from Petersburg or Wrangell. Ferry frequency is also improved with options involving more ferry vessels, or terminating all southbound ships at Prince Rupert, or the Lynn Canal corridor options. Extending all ferry trips to Seattle decreases ferry frequency by about 25 per cent.

The possibility of a service interruption is higher on roads than ferries during the winter months; however, interruptions in service are more likely to affect the ferry system than roads during the summer months when travel demand is greatest. Ferry reliability may also be affected in the future by employee strikes which may significantly increase the incidence of service interruptions.

Passenger trip time is improved with options involving replacement of ferries by hydrofoil or air cushion vehicles, or moving the southern ferry terminus from Seattle to Bellingham. Several community options, several options in the Juneau-Alaska Highway, and Sitka Road options also reduce travel time for local travel within the region. Roads to the interior or terminating ferry service at Prince Rupert increases travel time to Southeastern Alaska, and may affect travel time within the region. Road options generally offer the most convenience, while ferry options generally are much less convenient.

Other comparisons involving freight delivery time, delay time, amenity, change in corridor capacity, and safety are listed in the comparison tables. Some of these parameters such as corridor capacity and delay time vary significantly with each option, while other parameters such as safety vary less drastically.

Land Use Impact

Options involving the construction of roads produce high probable land use impacts; while ferry, barge, and air options produce low impacts on land use. Roads to the interior and road options in the Juneau-Alaska Highway corridor require between 600 and 1300 acres of land for development. Roads to Sitka, on Prince of Wales Island, Kake Road, and roads on Chichagof Island need between 200 and 800 acres for development. Air and water options generally need less than 10 acres for construction.

Roads to the interior and roads in the Juneau-Alaska Highway corridor affect current land uses along the corridor and tend to conflict with some existing and proposed land use policies. Air and water transportation options tend to have little effect upon land uses and land use policies. Systemwide and corridor options generally impact land uses to a greater extent than community options.

Transportation Parameters

Transportation service characteristics vary significantly with each transportation option. In general, options involving additional ferries, hydrofoil or air cushion vehicles, improvement of air float facilities, or Prince Rupert as the southern ferry terminus provide a high level of mode coordination and system flexibility. Regional roads and some roads to the interior permit a more efficient operation of the ferry system, while local roads produce little impact on the regional transportation systems. Ferry improvement options and some options with combined road and ferry systems offer a high potential for phased development, while road options cannot be developed in phases and fully utilized prior to completion. Air services can easily be modified as community needs change, ferry systems can be modified somewhat, and road systems cannot easily be changed.

Road systems to the interior require multi-government development or operation, which decreases the potential for early development. Barge service options require coordination with private operators which may require incentives for development. Roads internal to the region, ferry options, and air options can be developed and implemented by State agencies.

Social Impact

Road options tend to produce a higher social impact than air and water options; however, the effect is localized to the corridor being improved. Several of the road options are expected to require acquisition of private land and the displacement of families or businesses, although only the bridge to Gravina Island in Ketchikan poses a significant displacement problem. Roads to the interior and roads in areas currently designated as "roadless areas" produce high probable impacts on natural sites and hunting areas. New land or water service to currently isolated communities tends to produce some disruption to community character and to existing lifestyles in the community. None of the options are expected to cause any significant change in ethnic or economic barriers which may exist in the region.

Economic Impact

Road options generally result in the highest potential impact on local economy, while air system improvement options produce the lowest potential impact. Road links tend to decrease system operating costs, while expansion of the ferry system tends to increase operating costs. Air improvement options tend to have little effect on operating costs. Road options tend to have the highest development costs, and air or barge options, the lowest. Capital costs of ferry options vary significantly with the specific improvement.

Road options to the interior and roads in the Juneau-Alaska Highway corridor are expected to result in some increase in property valuation and some increase in tax revenues; however, the increases are expected to be less than one per cent of current valuation and tax revenues. None of the transportation options are expected to have a large impact on employment, retail sales, or development of industrial or natural resources, with the possible exception of the all road options between Juneau and Skagway. A road between Juneau and Skagway may have a slight impact on employment and retail sales.

Roads to the interior, except the road from Ketchikan, reduce operating costs for travel to the outside; however, roads within the region to serve a particular community may either increase or decrease operating costs in the corridor. Options to expand the ferry system or to replace the ferries with hydrofoil or air cushion vehicles increase operating costs. Operating costs are reduced by the options in the Juneau-Alaska Highway corridor, roads to Sitka, mainline ferry service to Prince of Wales Island, options to Metlakatla, the Gravina Island Bridge, and the ferry service terminus at Prince Rupert.

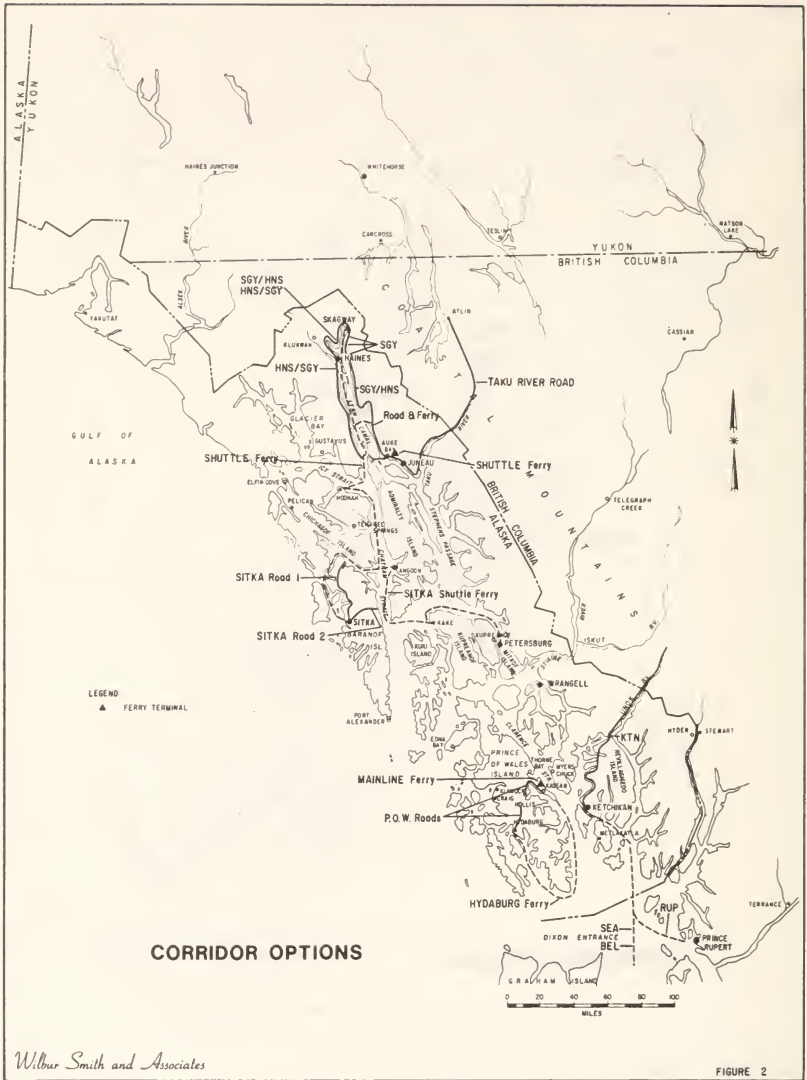
Road options generally include high development costs, while options improving air or barge improvement, modifications to the southern ferry terminus, or ferry service to small communities require very little capital investment. All road options to the interior require in excess of 100 million dollars to construct. The Taku River Road requires the highest development cost at 328 million dollars. In comparison, the ferry system requires at least 100 million dollars to renovate the existing fleet or to replace the fleet with hydrofoil or air cushion vehicles.

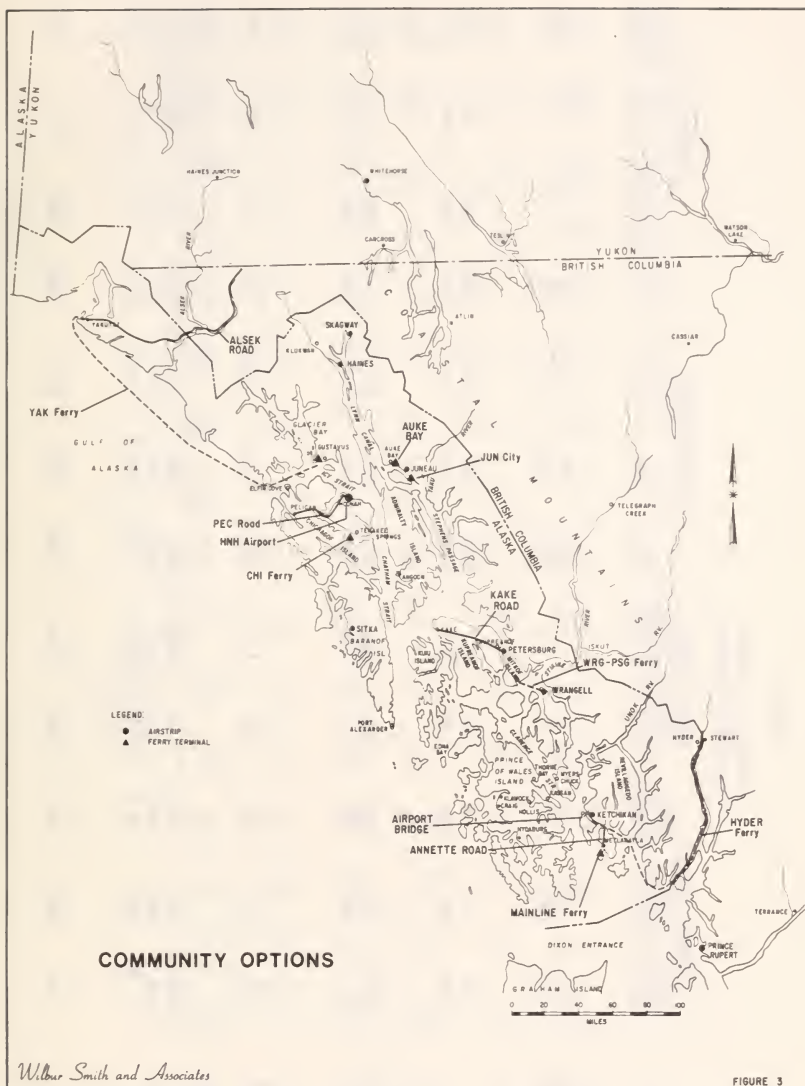
Environmental Impact

Environmental impact is potentially high with most road options, and low with most water or air options. Air quality impacts are low with all options, and impacts on soils and geology is highest with road options to the interior, or internal roads on steep slopes. Aesthetics impact is potentially high for new road construction, as is noise and vibration impacts. The hydrofoil or air cushion vehicle systems also can produce high noise impacts. Impacts on ecology are potentially highest with new road systems.

An investigation of fuel consumption data reveals that a highway system is more energy efficient than car ferries. However, it is this efficiency that is likely to result in a greater overall consumption of energy with a highway system. This is because the highway presents the user with a more convenient and economical alternative, resulting in a significant generation of vehicular traffic. Thus, the volume of road generated traffic may more than offset the greater efficiency of the highway system resulting in a greater overall use of fuel.







Wilbur Smith and Associates

FIGURE 3

Table 1a

COMPARISON SUMMARY
Systemwide Options

CATEGORY	IMPROVE FERRIES			IMPROVE BARGE		INTERIOR ROADS				IMPROVE AIR			
	MORE SHIPS	ALL HYDROFOIL	SOME HYDROFOIL	EXPAND SERVICE	CENTRAL SERVICE	PSG	MRG	WRG	PSG	KTN	AIRSTRIPS	FLOATS	NAVAIDS
Level of Service													
Change in ferry capacity (%)	+33	0	0	0	0	+46	+42	+46		+30	0	0	0
Change in ferry frequency (%)	+25	+300	0	0	0	+250	+250	+250		+25	0	0	0
Land Use Impact													
Land Taken (Acres)	0	0	0	2	2	600	740	1240		1075	30	0	2
Land Affected (Subj.)	Low	Low	Low	Low	Low	High	High	High		High	Low	Low	Low
Transportation Service													
Coordination potential (Subj.)	High	High	High	Med.	Med.	Med.	Med.	Med.		Low	Med.	High	Med.
Multi-agency development	No	No	No	No	Yes	Yes	Yes	Yes		Yes	No	No	No
Social Impact													
Families displaced (No)	0	0	0	0	0	0	0	0		0	0	0	0
Changes in Community (Subj.)	Low	Low	Low	Low	Low	High	High	High		High	Low	Low	Low
Economic Impact													
Impact on economy (Subj.)	Low	Low	Low	Low	Low	Med.	Med.	Med.		Low	Low	Low	Low
Change in operating cost (%)	+59	+26	+43	+1	+17	-36	-24	-33		+24	+7	0	0
Capital Cost (000,000 \$)	61.0	50.0	18.0	0.5	0	170.0	186.0	198.1		237.3	13.1	0.7	2.21
Environmental Impact													
Overall Impact (Subj.)	Low	Med.	Low	Low	Low	High	High	High		High	Low	Low	Low

Table 1b
COMPARISON SUMMARY
Corridor Options

CATEGORY	KTN-SEA				JUNO-ALASKA HIGHWAY				SHUTTLE		ROAD +		PSG-SIT-JUNO		SITKA		ROAD 2		HOLLIS-KTN		P.O.W. MAINTLINE HYDABURG	
	SEA	BEL	RUP	KTN	SAV	HMS	SGV	HMS	HMS	SGV	TARU	SHUTTLE	FERRY	SHUTTLE	FERRY	ROAD 1	SITKA	ROAD 2	ROADS	FERRY	FERRY	FERRY
Level of Service																						
Change in ferry capacity (%)	-27	0	+46	+30	+20	+20	+20	+18	+20	+20	+25	+25	+25	0	+7	+10	0	0	0	0	0	0
Change in ferry frequency (%)	-25	0	+25	+25	+10	+10	+10	+10	+10	+10	+10	+10	+10	+5	0	0	0	0	0	0	0	0
Land Use Impact																						
Land taken (Acres)	0	6	0	1075	1150	885	750	1015	-560	4	7	0	410	0	225	635	715	1	0	0	0	0
Land affected (Subj.)	Low	Low	Low	High	High	High	High	High	High	Low	Low	Low	Low	Low	Med.	Med.	Med.	Low	Med.	Med.	Low	Low
Transportation Service																						
Coordination potential	Med.	Med.	High	Low	Med.	Med.	Med.	Med.	Low	Med.	Med.	Med.	Med.	Low	Low	Low	Low	Low	Med.	Med.	Low	Low
Multi-agency development	No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
Social Impact																						
Families displaced	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Changes in community	Low	Low	Low	High	Med.	Med.	Med.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Med.	Med.
Economic Impact																						
Impact on Economy	None	None	None	Low	Med.	Med.	Med.	Low	Low	Low	Low	Low	Low	None	None	None	None	None	Low	Low	None	None
Change in operating cost (%)	+4	+2	-5	+24	-60	-58	-48	-41	-48	-31	-31	-31	-31	+105	-9	+61	+15	+15	+37	+10	+10	+10
Capital cost (\$00,000 \$)	0	0.8	0	237.3	202.2	160.5	99.8	140.9	328.3	18.0	21.5	18.0	18.0	56.1	90.7	57.0	59.0	59.0	59.0	59.0	59.0	59.0
Environmental Impact																						
Overall Impact	Low	Low	Low	High	High	High	High	Med.	High	High	Low	Low	Low	Low	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Low

Table 1c

COMPARISON SUMMARY
Community Options

CATEGORY	JUNEAU			YAKUTAI		METLAKATLA		CHICHAGOF		KTN		HYDER	
	CITY	AUXE BAY		YAK FERRY	ALSEK ROAD	MATLINE FERRY	ANNETTE ROAD	PEC ROAD	HNH AIRPORT	CHI FERRY	AIRPORT BRIDGE	KAKE ROAD	MRG-PSG FERRY
Level of Service													
Change in ferry capacity (%)	0	0		0	0	0	+1	0	0	0	0	0	0
Change in ferry frequency (%)	0	0		0	0	0	0	0	0	0	0	0	0
Land Use Impact													
Land Taken (Acres)	0	0		2	830	0	185	590	595	3	2	0	2
Land Affected (Subj.)	Low	Low		Low	High	Low	Med.	Med.	Low	Low	High	Low	Low
Transportation Service													
Coordination Potential (Subj.)	Med.	Med.		Low	Low	Med.	Med.	Low	Low	Med.	High	Low	Med.
Multi-Agency Development	No	No		No	Yes	No	No	No	No	No	No	No	No
Social Impact													
Families Displaced (No.)	0	0		0	0	0	1	0	0	0	3	0	0
Changes in Community (Subj.)	Low	Low		Med.	High	Low	Low	Med.	Low	Med.	Low	Med.	Low
Economic Impact													
Impact of Economy (Subj.)	Low	Low		Low	Med.	Low	Low	Low	Low	Low	Low	Low	Low
Change in Operating Cost (%)	+3	-1		N/A	N/A	-60	-65	+100	+534	N/A	-87	N/A	+22
Capital Cost (000,000 \$)	0	0		3.0	118.3	0.5	17.0	71.4	72.4	0	67.4	29.6	3.0
Environmental Impact													
Overall Impact (Subj.)	Low	Low		Low	High	Low	Med.	Med.	Med.	Low	Low	Med.	Low

Table 2

LEVEL OF SERVICE PARAMETERS
Systemwide Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	IMPROVE FERRIES			IMPROVE BARGE			INTERIOR ROADS			IMPROVE AIR		
				MORE SHIPS	ALL SHIPS	SOME HYDROFOIL	EXPAND SERVICE	CENTRAL SERVICE	PSG	MRG	KTN	AIRSTRIPS	FLOATS	MAVAIDS	
Reliability	Design Performance	Number of days per year system fails to perform	≤ 5 $\frac{(1)}{(2)}$ 20-30	≤ 5 Very Low Med.	10-25 Very Low High	5-10 Very High	≤ 5 Very Med. Med.	≤ 5 Very Low Very Low Low	≤ 5 Very Low Very Low Low	≤ 5 Very Low Very Low Low	≤ 5 Very Low Very Low Low	20-30 Very Med. Med.	20-30 Very Low Med.	10-15 Low Med. Med.	
Capacity	Change in mainline ferry capacity in S. E. Alaska (\$)	Change in capacity new capacity / existing capacity (persons per week one way)	----- 3220 1720	+33 Very Low Med.	0 Very Low High	0 Very High	0 Very Med. Med.	0 Very Med. Med.	+46 Very Low Very Low Low	+42 Very Low Very Low Low	+46 Very Low Very Low Low	+30 Very Low Very Low Low	N/A Very Med. Med.	N/A Low Med. Med.	N/A Low Med. Med.
Safety	Change in the number of main line vessels to provide service equal to existing capacity	Accident experience	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.
Mobility	Change in average passenger journey time (hrs.)	Freight loss, damage, spoilage	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.
	SEA-KTN	SEA-SIT	40.5 66.5 48.5	--- Very Low Med.	-13.5 Very Low High	--- Very High	--- Very Med. Med.	--- Very Med. Med.	+15.0 Very Low Very Low Low	+16.5 Very Low Very Low Low	+15.0 Very Low Very Low Low	+13.0 Very Low Very Low Low	--- Very Med. Med.	--- Very Med. Med.	--- Very Med. Med.
	SEA-PSG	SEA-MRG	66.5 44.5 51.0	--- Very Low Med.	-22.5 Very Low High	-3.5 Very High	--- Very Med. Med.	--- Very Med. Med.	-4.5 Very Low Very Low Low	-1.0 Very Low Very Low Low	-4.5 Very Low Very Low Low	+10.0 Very Low Very Low Low	--- Very Med. Med.	--- Very Med. Med.	--- Very Med. Med.
	SEA-JNU	SEA-SGV	48.5 63.5 26.5	--- Very Low Med.	-16.5 Very Low High	--- Very High	--- Very Med. Med.	--- Very Med. Med.	+9.5 Very Low Very Low Low	+4.5 Very Low Very Low Low	+9.5 Very Low Very Low Low	+16.5 Very Low Very Low Low	--- Very Med. Med.	--- Very Med. Med.	--- Very Med. Med.
	KTN-CRAIG	SIT-ANG	5.0 7.5 158.0	--- Very Low Med.	-1.0 Very Low High	--- Very High	--- Very Med. Med.	--- Very Med. Med.	+1.0 Very Low Very Low Low	+1.0 Very Low Very Low Low	+1.0 Very Low Very Low Low	+0.5 Very Low Very Low Low	--- Very Med. Med.	--- Very Med. Med.	--- Very Med. Med.
	CHI-JNU		158.0	--- Very Low Med.	-23.5 Very Low High	-2.5 Very High	--- Very Med. Med.	--- Very Med. Med.	+1.0 Very Low Very Low Low	+1.0 Very Low Very Low Low	+1.0 Very Low Very Low Low	+9.0 Very Low Very Low Low	--- Very Med. Med.	--- Very Med. Med.	--- Very Med. Med.

(1) Ferry System
(2) Air System

Table 5
LEVEL OF SERVICE PARAMETERS
Corridor Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	SEA	BEL	KTN-SEA	RUP	KTN	SGT HMS	SOV	JNU-ALASKA HMS SGT	KAD RIVER	SHUTTLE FERRY	ROAD* FERRY	PSG FERRY	SIT ROAD 1	JNU ROAD 2	SIT* ROAD 1	P.O.W. ROADS	MOLLS-KTN MARLINE FERRY	HYDROBUS FERRY
Mobility (cont)	Change in average passenger transfer and waiting time by proposed route (hrs.)	SEA-KTN	42.0	-21.0	----	----	-1.0	-14.0	----	----	----	----	----	----	----	----	----	----	----	----	----
		SEA-SIT	49.0	-21.0	----	----	-1.0	+12.0	----	----	----	----	----	----	+	-3.0	----	-3.0	----	----	----
		SEA-PSG	45.0	-21.0	----	----	-1.0	+12.0	----	----	----	----	----	----	+	----	----	----	----	----	----
		SEA-JNU	48.5	-21.0	----	----	-1.0	+12.0	----	----	----	----	----	----	----	-1.5	----	-1.5	----	----	----
		SEA-HMS	50.5	-21.0	----	----	-1.0	+12.0	-2.0	-1.5	-1.0	+19.5	+1.0	+1.0	----	-1.5	----	-1.5	----	----	----
		SEA-SGT	31.5	-21.0	----	----	-1.0	+12.0	-3.0	-3.0	----	-1.0	+1.0	+1.0	----	-1.5	----	-1.5	----	----	----
		SEA-SOV	44.0	-21.0	----	----	-1.0	+12.0	-3.0	-3.0	----	-1.0	+1.0	+1.0	----	-1.5	----	-1.5	----	----	----
		KTN-GRAIG	56.0	-21.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
		SIT-ANG	45.0	-21.0	----	----	----	----	----	----	----	----	----	----	----	-3.0	----	-3.0	----	----	----
		CHI-JNU	126.0	-21.0	----	----	-1.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Amenity	Change in average freight delivery time (hrs.)	SEA-KTN	66.0	----	----	----	----	-36.5	----	----	----	----	----	----	----	----	----	----	----	----	----
		SEA-JNU	102.0	----	----	----	----	-36.5	-5.0	-5.0	-4.0	----	----	----	----	----	----	----	----	----	----
		SEA-PSG	91.0	----	----	----	----	-33.5	----	----	----	----	----	----	----	----	----	----	----	----	----
		SEA-GRAIG	95.0	----	----	----	----	-33.5	----	----	----	----	----	----	----	----	----	----	----	----	----
		SEA-ANG	130.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
		SEA-YAK	148.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Convenience	Service frequency (trips/week) one-way	SEA-KTN	2	4	2	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2
		KTN-MRG	7	5	7	9	9	9	10	10	10	10	10	10	7	7	7	7	7	7	7
		MRG-PSG	7	5	7	9	9	9	10	10	10	10	10	10	7	7	7	7	7	7	7
		SGT-JNU	8	6	8	10	10	10	10	10	10	10	10	10	7	7	7	7	7	7	7
		JNU-SIT	8	6	8	10	10	10	10	10	10	10	10	10	7	7	7	7	7	7	7
		PSG-SIT	3	2	3	4	5	5	4	4	4	4	4.5	4.5	6	3	3	3	3	3	3
		SIT-ANG	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1
		KTN-CORIG	3	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3
		Subj.	High	High	High	High	High	Med.	Med.	Med.	Med.	Low	Med.	Med.	Med.	Low	Med.	Low	Med.	Med.	Med.
		Subj.	High	High	High	High	High	Med.	Med.	Med.	Med.	Low	Med.	Med.	Med.	Low	Med.	Low	Med.	Med.	Med.
Convenience	Waiting time at terminal (foot/car)	Min.	30	30	30	30	0	0	0	20	90	0	30	30	20	30	30	30	30	30	20
		Availability of service at preferred travel times	30	30	30	30	0	0	0	20	90	0	30	30	20	30	30	30	30	30	20
		Accessibility of terminal	Poor	Poor	Poor	Poor	Poor	Very High	Very High	High	Med.	Very High	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Very Poor
		Travel Time (min)	10	10	10	10	10	N/A	N/A	N/A	15	N/A	12	40	10	55	35	55	55	95	5

Table 6
LEVEL OF SERVICE PARAMETERS
Community Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	JUNEAU CITY	JUNEAU BOULEVARD WAY	YAKUTAT FERRY	YAKUTAT ROAD	MTLAKATLA FERRY	MTLAKATLA ROAD	CHICHAGOF AIRPORT	CHI FERRY	KTN AIRPORT BRIDGE	KAKE RAVE ROAD	HUDEF HYDER FERRY	MKG-PSG MKG-PSG FERRY
Reliability	Design Performance	Number of days per year system fails to perform	< (1) (2)	<	<	5-10	5-10	<	<	15-20	<	0	0	<	<
			Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.	Very Low Med.
			----	0	0	0	0	+	0	0	0	0	0	0	0
Capacity	Change in capacity new capacity/existing capacity (persons per week one way)	Change in capacity new capacity/existing capacity (persons per week one way)	----	4220 4220	4220 4220	63 0	30,000 0	3720 640	3700 2000	N/A	250 0	65,000 10,000	30,000 250	63 0	5960 3720
			----	0	0	0	0	0	0	0	0	0	0	0	0
			----	0	0	0	0	0	0	0	0	0	0	0	0
Safety	Accident experience	Property damage experience	Med.	Low	Low	Med.	Low	Low	Low	Med.	Low	Very Low	Low	Med.	Low
			Med.	Med.	Med.	Med.	Low	Med.	Low	Low	Low	Low	Low	Med.	Low
			Low	Low	Low	Low	Low	Low	Low	Low	Low	Very Low	Low	Med.	Low
Mobility	Change in average passenger Journey time by proposed route (hrs.)	SEA-KTN SEA-SIT SEA-PSG SEA-MKG SEA-JNU SEA-HNS SEA-SGY KTN-SGY KTN-CRAG SIT-ANG CHI-JNU	40.5 66.5 48.5 44.5 57.0 63.5 64.0 26.5 5.0 7.5 156.0	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	+1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5 +1.5	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

(1) Marine System
(2) Air System

Table 7
LEVEL OF SERVICE PARAMETERS
Community Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	JUNEAU CITY	AUKU BAY	YAK FERRY	YAKUTAT ALSEK ROAD	MEHLAKATLA RAYNETH ANNETTE ROAD	CHICAGO HNM AIRPORT	CHI FERRY	KTN AIRPORT BRIDGE	KAKE KAKE ROAD	HYDER HYDER FERRY	MRG-PSG MRG-PSG FERRY
Mobility (cont)	Change in average passenger transfer and waiting time by proposed route (hrs.)	SEA-KTN	42.0	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-SIT	49.0	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-PSG	45.0	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-MRG	43.0	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-JNU	48.5	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-HMS	50.5	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-SGT	51.5	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		KTN-SGT	35.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		KTN-CRAG	28.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SIT-ANG	145.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	+14.0	-----
		CHI-JNU	126.0	-----	-----	-----	-----	+1.0	-----	-----	-----	-----	-----	-----
		SEA-KTN	66.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-JNU	102.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-SGT	115.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-CRAG	95.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-ANG	130.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-MRG	148.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-YAK	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
		SEA-KTN	2	2	2	2	2	2	2	2	2	2	2	2
		KTN-MRG	7	7	7	7	7	7	7	7	7	7	7	7
	Service frequency one way (trips/week)	MRG-PSG	7	7	7	7	7	7	7	7	7	7	7	7
		PSG-JNU	8	8	8	8	8	8	8	8	8	8	8	8
		JNU-SGT	8	8	8	8	8	8	8	8	8	8	8	8
		PSG-SIT	3	3	3	3	3	3	3	3	3	3	3	3
		SIT-ANG	1	1	1	1	1	1	1	1	1	1	1	1
		KTN-CRAG	3	3	3	3	3	3	3	3	3	3	3	3
		Subj.	High	High	High	High	High	High	High	High	High	High	High	High
		Subj.	High	High	High	High	High	High	High	High	High	High	High	High
		Min.	30	30	30	30	30	30	30	30	30	30	30	30
		Subj.	90	90	90	90	90	90	90	90	90	90	90	90
	Quality of service	Waiting time at transfers	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor
		Availability of service at preferred travel time	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor	Very Poor
		Accessibility of terminal (travel time at terminal)	High	High	High	High	High	High	High	High	High	High	High	High
		Min.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Subj.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Min.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Subj.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Min.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Subj.	10	7	12	5	N/A	10	35	N/A	10	5	15	15
		Min.	10	7	12	5	N/A	10	35	N/A	10	5	15	15

Table 9
LAND USE PARAMETERS
Corridor Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	KTN-SEA				JULI-ALASKA HIGHWAY				SHUTTLE		PSG - SIT		JNU		MOLLS-KTN	
				SEA	BEL	RUP	KTN	SGY	HMS	SGY	HMS	YAKU	SHUTTLE	ROAD	FERRY	SITVA	ROAD 2	ROADS	FERRY
Direct Land use Impacts	Additional land occupied by transportation improvement.	Acres	----	0	6	0	1075	1150	885	750	1015	560	4	7	0	410	225	635	715
				0	0	0	2145	1710	1445	1300	1555	1120	4	4	0	820	420	1270	1430
Support for Land use policies	Land rendered unsuitable for present use.	Acres	----	0	2	2	Neg1.	2000	2000	1000	1000	2000	0	4	0	Neg1.	Neg1.	Neg1.	0
	Conflicts between transportation and future development policies.	Subj.	----	Low	Low	Low	Very High	High	High	Low	Low	Med.	Low	Low	Very Low	Low	Low	Very Low	Low

TRANSPORTATION PARAMETERS
Corridor Options

Modal Coordination	Development of logical route/service structure Efficient use of equipment and facilities Opportunity for phased development Flexibility to adapt wide range of needs Flexibility to adapt schedules and maintain mode coordination	Subj. Subj. Subj. Subj. Subj.	-----	High	High	Med.	Very Low	Very Low	Med.	Med.	Med.	Very Low	Low	Low	High	Low	Low	High	Low
				Low	High	High	Low	Very High	Med.	Med.	Med.	Low	High	High	Low	High	High	High	Low
				High	Very Low	High	Very Low	Med.	High	High	High	Very Low	Low	Low	Low	Very Low	Low	Med.	Very Low
				Low	Med.	High	Med.	High	Med.	Med.	Med.	Med.	High	High	Low	Low	Low	Med.	Low
				High	High	High	High	High	High	Med.	Med.	High	Low	Low	Med.	Low	Low	Low	Low
Development Coordination	Opportunity to provide services phased with development	Subj.	-----	Low	Low	Low	Low	Med.	Med.	High	High	Low	High	High	Med.	High	High	High	High
				Very High	Very High	Very High	Med.	High	High	High	High	Med.	Very High	Very High	Very High	High	High	Very High	Very High
Technical Feasibility	Demonstrated capability for implementation	Subj.	-----	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
				No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
Jurisdictional Coordination	Requires multi-agency development or operation	Subj.	-----	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
				No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No

Table 12
SOCIAL PARAMETERS
Corridor Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	KTN-SEA				JNL-ASKA HIGHWAY				PSG - SIT				JNU - SIT				P.O.W. MARINE HARBOR						
				SEA	BEL	RUP	KTN	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY	HMS	SGY
Displacement	Families or dwellings to be displaced	Number	-----	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Businesses to be displaced	Number	-----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Institutions or public services to be displaced	Number	-----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Disruption	Changes in community character or identity	Subj.	-----	None	None	None	None	Low	Low	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	Low
	Alteration of lifestyle	Subj.	-----	Low	None	Low	Low	Low	Low	None	None	Low	Low	Low	Low	None	None	None	None	None	None	None	None	None	None	Low
	Changes in community	Subj.	-----	Med.	Low	Med.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
	Changes in accessibility of public services	Subj.	-----	Low	None	Low	None	Med.	Med.	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	Med.
	Disturbance of hunting, fishing or skiing areas	Subj.	-----	None	None	None	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	None
	Effects on community culture.	Subj.	-----	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	Low
	Changes in accessibility to public facilities or recreation areas	Subj.	-----	None	None	None	Low	Med.	Med.	Med.	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	Low
	Changes in intercommunity interaction	Subj.	-----	Med.	None	Med.	Med.	Med.	Med.	Med.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
	Impact on historic, cultural, natural sites	Subj.	-----	None	None	None	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	Med.
Consistency with Social Planning Objectives	Impact on accessibility to historic, cultural, natural sites	Subj.	-----	Low	None	Low	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Med.	Low
	Enhancement of development of ethnically or economically integrated areas	Subj.	-----	Low	None	Low	None	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low

Table 13

SOCIAL PARAMETERS
Community Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	JUNEAU															
				JUNI CITY	AUKU BAY	YAK FERRY	YAKUTAT ROAD	ALSER ROAD	MAINLINE ROAD	METLAKATLA FERRY	ANNETTE ROAD	PEC ROAD	CHICAGO I AIRPORT	CHICAGO II AIRPORT	CHICAGO III AIRPORT	KAT BRIDGE	KAT ROAD	MRG-PSG FERRY	
Displacement	Families or dwellings to be displaced	Number	-----	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0	
	Businesses displaced	Number	-----	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	
	Institutions or public services displaced	Number	-----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Disruption	Changes community character and identity	Subj.	-----	None	None	Low	Low	Low	None	None	Low	Low	High	None	Low	Low	Low	None	
	Alteration of lifestyle	Subj.	-----	Low	None	Low	Low	Low	None	None	Low	Low	Med.	None	None	Low	Low	None	
	Changes in community isolation	Subj.	-----	Med.	None	High	Med.	Low	Low	Low	Low	Low	High	None	None	Low	Med.	None	
Consistency with Social Objectives	Changes in isolation of public services	Subj.	-----	Low	None	Med.	None	None	None	None	Low	Low	Med.	None	Med.	Med.	High	None	
	Disturbance of hunting, fishing or skiing areas.	Subj.	-----	None	None	None	None	None	None	None	Low	Low	None	None	None	Low	Med.	None	
	Effects on community culture	Subj.	-----	None	None	Low	Low	Low	None	None	Low	Low	High	None	None	Low	Low	None	
Consistency with Social Objectives	Changes in accessibility to public facilities & recreation	Subj.	-----	None	Low	Low	Med.	Med.	None	Low	Low	Med.	Med.	Low	Low	High	Med.	None	
	Changes in intercommunity interaction	Subj.	-----	Med.	Low	High	Low	Low	Med.	Low	Med.	Med.	High	None	None	Med.	Med.	Low	
	Impact on cultural, historic, natural sites	Subj.	-----	None	None	Low	Med.	Med.	None	None	Low	Low	Low	None	None	Med.	Low	None	
Consistency with Social Objectives	Impact on accessibility of historic cultural, natural, sites	Subj.	-----	Low	None	Low	Med.	Med.	None	None	Low	Low	Low	None	None	Med.	Low	None	
	Enhancement of ethnically and economically integrated area	Subj.	-----	Low	None	Med.	Low	Low	Low	None	None	None	Med.	None	None	Low	Low	None	

Table 15
ECONOMIC PARAMETERS
Corridor Options

CATEGORY	PARAMETER	MEASUREMENT	EXIST	KTN-SEA			KTN			SVY			JULIA-ALASKA HIGHWAY			SHUTTLE			PSG - SIT - JMI			P.O.W. HALLIE			HOLLIS-KTN		
				SEA	BEL	RUP	KIN	HMS	SSY	HMS	SAT	RIVER	ROADS	SHUTTLE	SHUTTLE	SHUTTLE	ROADS	SHUTTLE	SHUTTLE	ROADS	SHUTTLE	ROADS	SHUTTLE	ROADS	SHUTTLE	ROADS	SHUTTLE
Tax Base	Reduction in taxes from property taken off tax rolls	Assessed value of property (000 \$)	-----	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Increase in valuation of property remaining on tax rolls	Increase in assessed valuation of property (000 \$)	-----	0	0	0	850	1500	1500	1500	300	300	450	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Local Economy	Increase in tax revenues due to increase in assessed valuation (000 \$)	Tax revenues due to increase in assessed valuation (000 \$)	-----	0	0	0	18.0	24.0	24.0	24.0	5.0	5.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	Employment Impact	Subj.	-----	None	None	None	Very Low	Low	Low	Med.	Low	Med.	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Operating costs	Employment payrolls	Subj.	-----	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Industrial, natural resources	Subj.	-----	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
Operating costs	Travel Cost (Future/Existing)	\$/Passenger or ton	-----	36.65	38.23	38.23	73.96	6.67	6.35	13.14	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73
	Driver or crew cost (Future/Existing)	\$/Passenger or ton	-----	32.21	29.92	29.92	8.65	0	3.10	16.21	6.19	0	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94	12.94
Capital Cost	Management, Administration and General cost (Future/Existing)	\$/Passenger or ton	-----	32.83	32.15	32.15	19.16	0	1.08	5.83	2.16	0	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96	9.96
	Maintenance Cost (Future/Existing)	\$/Passenger or ton	-----	17.18	17.18	17.18	42.22	12.94	10.11	12.38	7.20	7.20	11.96	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19	16.19
Capital Cost	Total (Future/Existing)	\$ (000,000's)	-----	124.61	121.48	121.48	139.99	19.61	20.64	48.06	29.57	25.03	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32	45.32
	Land acquisition	\$ (000,000's)	-----	119.44	119.44	119.44	119.44	30.07	30.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07	50.07
Capital Cost	Construction	\$ (000,000's)	-----	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Equipment	\$ (000,000's)	-----	0	0	0	0	2.0	8.0	4.0	4.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Capital Cost	Total	\$ (000,000's)	-----	100.0	100.0	100.0	237.3	202.2	158.5	91.8	136.9	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3
	Existing mainline ferry fleet																										
Capital Cost	Total	\$ (000,000's)	-----	100.0	100.0	100.0	237.3	202.2	158.5	91.8	136.9	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3	328.3
	Not including capital costs to maintain existing ferry fleet																										

(1) Existing mainline ferry fleet

(2) Not including capital costs to maintain existing ferry fleet

Table 16

ECONOMIC PARAMETERS
Community Options

CATEGORY	PARAMETER	MEASUREMENT	EXISTI	JUNEAU CITY	AUKÉ BAY	TAK FERRY	YAKUTAT FERRY	YAKUTAT ROAD	ALSEK ROAD	METLAKATLA FERRY	METLAKATLA ROAD	CHICAGO 1 AIRPORT	CHICAGO 1 FERRY	CAI FERRY	KTN BRIDGE	KAKE ROAD	HYDER FERRY	WRC-PSG FERRY
Tax Base	Reduction in taxes from property removed from tax rolls	Assessed value of property (000 \$)	-----	0	0	0	0	0	0	0	0	0	0	0	230	35	0	0
	Increase in valuation of property remaining on tax rolls	Increase in assessed valuation of property (000 \$)	-----	0	0	0	0	25	0	0	0	0	0	0	450	60	0	0
	Increase in tax revenues due to assessed valuation	Tax revenues due to increase in assessed valuation (000 \$)	-----	0	0	0	0	0.5	0	0	0	0	0	0	10.0	0	0	0
			-----	None	None	None	None	Low	Low	None	Low	Low	None	None	Very Low	Low	Low	None
Local Economy	Employment Impact	Subj.	-----	None	None	None	None	Low	Low	None	Low	Low	None	None	Very Low	Low	Low	None
	Retail Impact	Subj.	-----	None	None	None	None	Low	Low	Very Low	Very Low	Low	None	None	Low	Low	Low	None
	Employer Payrolls	Subj.	-----	None	None	None	None	Low	Low	None	None	Low	None	None	Very Low	Low	Low	None
	Industrial, natural resource development	Subj.	-----	None	None	None	None	Mod.	Mod.	None	None	Low	None	None	Low	Low	None	None
Operating Costs	Native lands development	Subj.	-----	None	None	None	None	None	None	Very Low	Low	None	None	None	None	Low	None	None
	Travel Cost (Future/Existing)	\$/Passenger or ton	0 35.13	35.54 34.38	34.26 34.38	25.34 0	9.87 0	0	0	8.94 17.56	3.68 17.56	2.26 40.51	22.38 20.12	38.71 0	0.14 0.82	5.12 15.20	172.18 0	2.86 6.03
	Driver or crew cost (Future/Existing)	\$/Passenger or ton	0 80.87	32.80 31.87	31.74 31.87	22.26 0	0	0	0	7.85 38.02	2.62 38.02	0 49.70	13.31 13.31	83.68 0	0 0.99	3.77 18.64	211.21 0	6.12 5.29
	Management, Administration and General Cost (Future/Existing)	\$/Passenger or ton	0 36.26	35.27 34.35	34.30 34.35	26.14 0	0	0	0	9.23 13.45	3.08 13.45	0 29.04	2.63 2.63	29.58 0	0 0.58	2.20 10.89	123.41 0	2.19 6.22
Capital Costs (1)	Maintenance Cost (Future/Existing)	\$/Passenger or ton	0 17.18	16.93 16.52	16.45 16.52	12.38 0	440.16 0	0	0	4.37 7.62	17.81 7.62	262.52 15.73	281.90 14.38	16.75 0	0.20 0.31	79.13 5.88	66.84 0	3.75 2.34
	Total	\$/Passenger or ton	0 119.44	120.54 117.22	116.97 117.22	86.12 0	450.03 0	0	0	30.39 76.65	27.19 76.65	269.78 134.98	320.22 50.44	168.72 0	0.34 2.70	90.22 50.62	573.64 0	24.92 20.48
	Land Acquisition	\$ (000,000's)	-----	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0
	Construction	\$ (000,000's)	-----	0	0	0	2.0	118.3	0.5	17.0	71.4	72.4	0	0	67.2	29.1	3.0	1.0
Equipment	Equipment	\$ (000,000's)	100.0	0	0	1.0	0	0	0	0	0	0	0	0	0	0.5	0	0.5
	Total	\$ (000,000's)	100.0	0	0	3.0	118.3	0.5	17.0	71.4	72.4	72.4	0	0	67.2	29.6	3.0	1.5

(1) Not including capital costs to maintain ferry fleet

Table 19
ENVIRONMENTAL PARAMETERS
Community Options

CATEGORY	PARAMETERS	MEASUREMENTS	EXIST	JUNEAU				YAKUTAT		METLAKATLA		CHICAGO			KATIN		HYDER	WAG-PSG
				CITY	ALICE BAY	FERRY	YAK FERRY	YAK FERRY	ALICE ROAD	MATLINE ANNETTE FERRY	ROAD	PEC ROAD	INW AIRPORT	CHI FERRY	ATPORT BRIDGE	KAKE ROAD	HYDER FERRY	WAG-PSG FERRY
Air Quality	Change in exhaust gasses, Hydrocarbons, particulate matter	Subj.	-----	None	None	None	Low	Low	Low	None	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
	Impact on erosion, slope stability	Subj.	-----	None	None	None	None	Low	Low	None	Low	Med.	Med.	None	None	Very Low	None	None
Soils-Geology	Impact on natural appearance	Subj.	-----	None	None	None	None	Low	Low	None	Low	Med.	Med.	None	Very Low	None	None	None
	Impact on population areas	Subj.	-----	None	None	None	None	Very Low	Very Low	None	Very Low	Low	Low	Very Low	Very Low	Low	Very Low	Very Low
Landscape/Aesthetics	Impact on plant communities and wildlife habitats	Acres removed	-----	0	0	10	2300	10	2300	10	220	860	860	10	10	800	10	10
	Impact on significant fish and wildlife habitats	Number of streams crossed	-----	0	0	1	500	1	500	1	20	330	330	0	0	15	1	0
Ecology	Impact on threatened or endangered species	Subj.	-----	None	None	Very Low	None	None	None	Very Low	None	Very Low	Very Low	None	None	Very Low	Very Low	None
	Impact on migratory corridors	Subj.	-----	None	None	None	Low	Med.	Med.	Very Low	None	Very Low	Very Low	Very Low	None	Very Low	None	None
Other resources consumed	Edge created	Acres	-----	0	0	0	540	0	540	0	65	200	200	0	5	190	0	0
	Potential for animal collisions	Percent change in vehicle miles	-----	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Impact on roadless areas	Subj.	-----	None	None	Very Low	Very High	None	None	None	Low	Very High	Very High	Very Low	Low	Med	Low	Very Low
	Change in fuel consumed	Gallons/year (000's)	-----	+58	-32	+20	+45	-15	-28	+2	+5	+38	+4	+30	+34	+40	+40	+90

MATERIAL ON CENTRAL ALASKA

ALASKA OIL AND GAS ASSOCIATION

505 W. Northern Lights Boulevard
Suite 219

Anchorage, Alaska 99503

Area 907 272-1481

February 28, 1978

Subcommittee on Public Lands and
Resources
Room 3106
Dirksen Senate Office Building
Washington, D. C. 20510

Gentlemen:

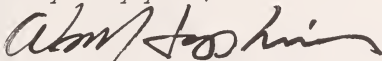
Enclosed is a set of seven maps used for a portion of industry's presentation at the d-2 workshop in Anchorage. They were used in the presentation of Alexander Sisson, Union Oil Company of California and cover:

Bristol Bay Basin, Togiak Wildlife Range
North Katmai Addition
South Katmai Addition
All Alaska Peninsula proposals
Mt. McKinley Park - south addition only
Northern Gulf of Alaska Basin, including
Copper River Delta south portion of
Wrangell - St. Elias Park

We have not received maps from the other petroleum industry representatives and trust they are submitting them to you individually. We are in the process of compiling a similar set of maps for the entire state. As soon as these are complete, we will send you a copy but we expect it will be another couple of weeks.

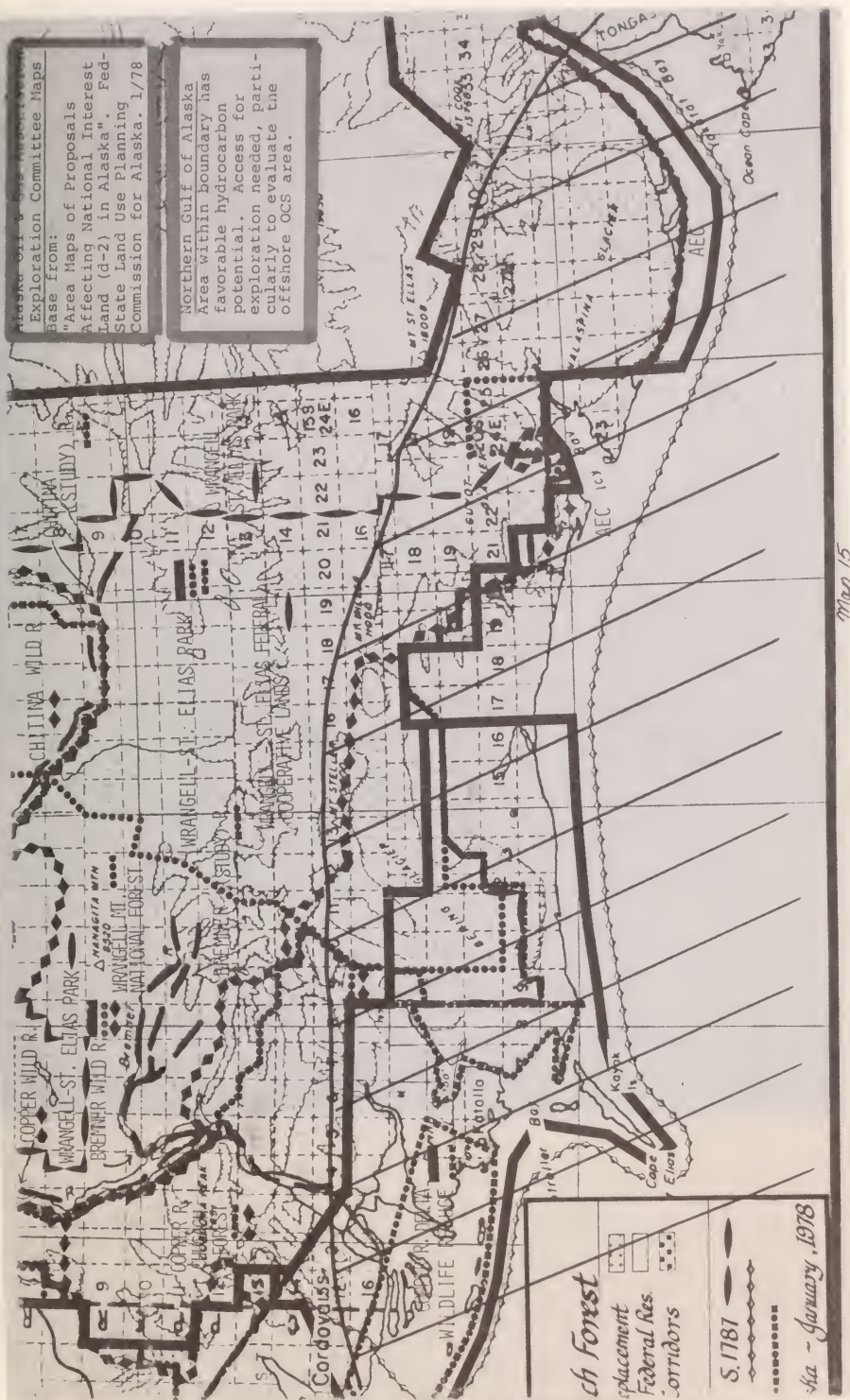
If I can be of further assistance, please do not hesitate to let me know.

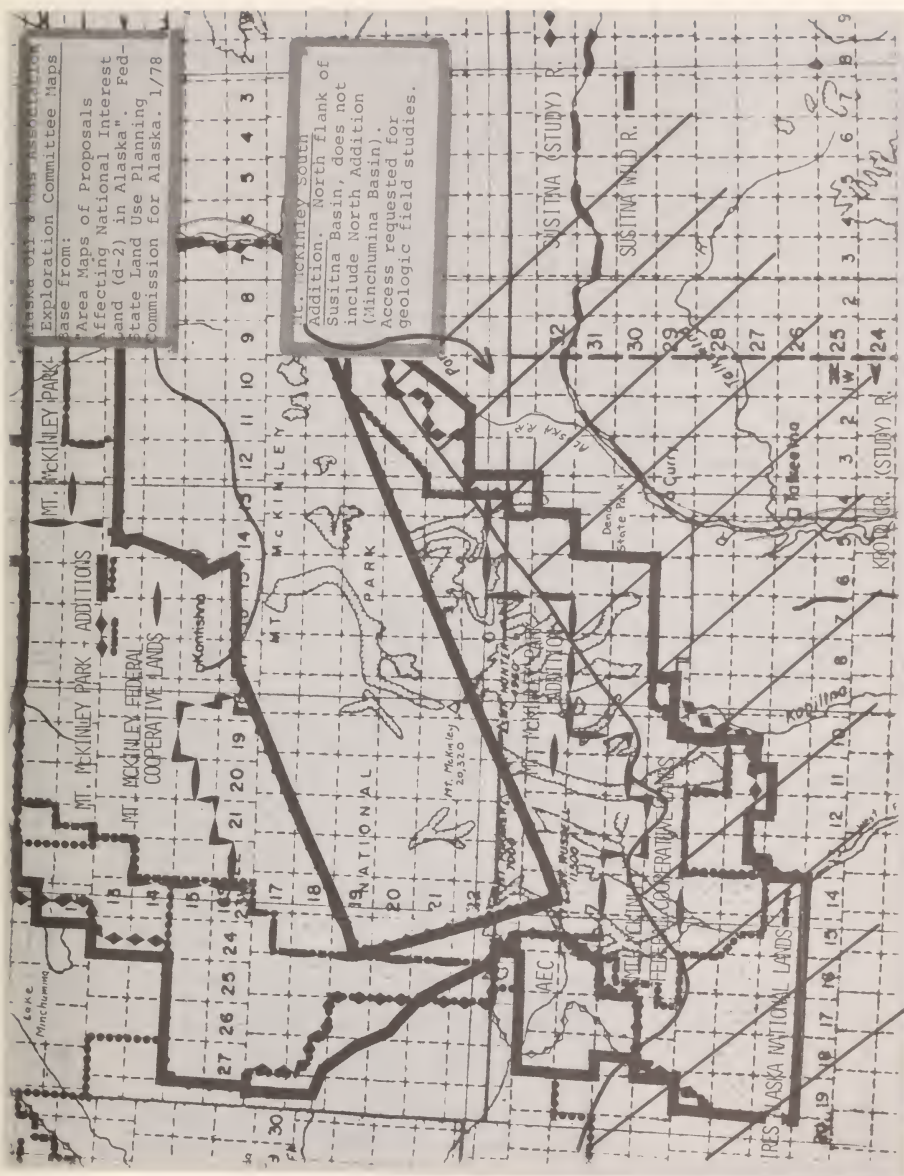
Very truly yours,

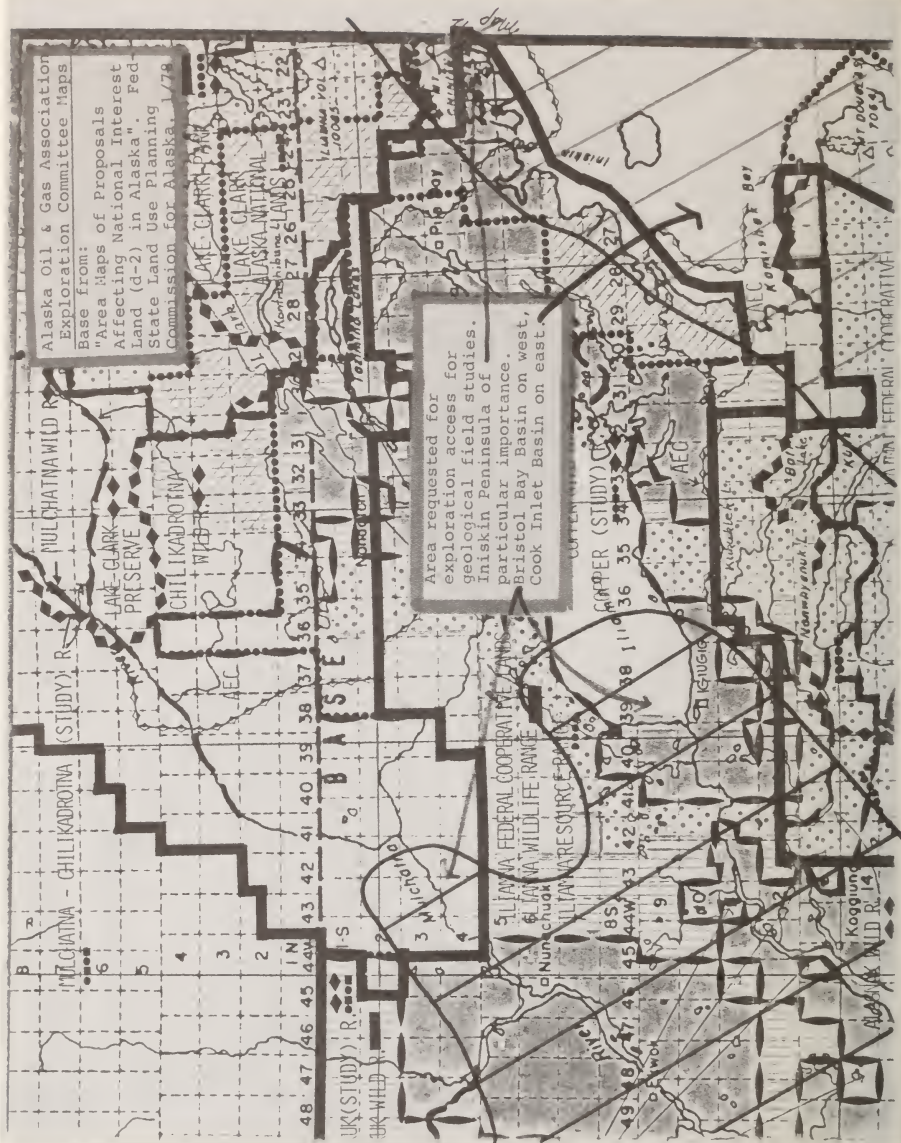
WILLIAM W. HOPKINS
Executive Director

WWH:am

Enclosures 7









United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

Mr. Steven Quarles
Senate Committee on Energy
and Natural Resources
Room 3106
Dirksen Senate Office Building
Washington, D. C. 20510

MAR 28 1978

Dear Steve:

At the recent Senate staff workshops in Alaska you asked the Heritage Conservation and Recreation Service to respond to the following three questions concerning the wild and scenic rivers element of the Administration's recommendations:

1. The reason for the specific classification on each of the 33 rivers;
2. The termini for each classification on each of the 33 rivers; and
3. The reason for the particular termini for each classification of the 33 rivers.

Enclosed is a table showing the 33 rivers, the proposed termini of each river or segment, and the proposed classification.

Section 2(b) of the Wild and Scenic Rivers Act defines wild, scenic and recreational classifications as follows:

1. Wild river areas--Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
2. Scenic river areas--Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3. Recreational river areas--Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Section 10(a) provides that "Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system" Since administration is determined in part by how a river is classified, the Department of the Interior has always felt that the rivers should be designated according to the most restrictive classification for which they qualify.

Most Alaskan rivers meet the qualification for "wild" classification according to provision of the Wild and Scenic Rivers Act and the Guidelines established jointly by the Departments of the Interior and Agriculture. The two exceptions in the Administration's D-2 recommendations are segments of the Delta and Fortymile. The Tangle Lakes area of the Delta is classified as scenic because the Denali Highway crosses the lakes area, and because of the presence of various developments--a private lodge with associated developments and campgrounds. The lower segment is classified as scenic because of the Richardson Highway and various private developments. The segments of the Fortymile system classified as scenic show substantial alterations by man, principally from mining. Several mines located on these tributaries are intermittently active. The Wade Creek unit is classified as recreational because it is paralleled by the Taylor Highway in addition to being altered by gold dredging.

Most rivers lying within proposed National Parks/Preserves and National Wildlife Refuges have termini points which are conterminous with the park or refuge boundaries. These points were chosen to avoid potential conflicts, i.e., large private (Native) land withdrawals. In most cases, the remaining river segment would qualify also. An exception within a Preserve is the Noatak where the downstream terminus chosen is the confluence with the Kelly River because this is a logical take-out point shortly before reaching the boundary of the proposed preserve. Exceptions where proposed designation includes all or part of the river outside the proposed park or refuge are the Nowitna, Killik, Copper and Alagnak Rivers.

The upper segment of the Nowitna River lies on either State selected lands or Section 17(d)(1) lands. The segment flowing through Section 17(d)(1) lands is recommended for designation.

The Killik River flows out of the proposed Gates of the Arctic Wilderness National Park and into dual D-2/Native selected lands to its confluence with the Colville River.

The Alagnak flows through Section 17(d)(2) lands and Native withdrawal lands. The lower terminus is located where the dual withdrawals give way to Native selection only. The upper eight miles flow only through Native selected land, but this section is included because Kukaklek Lake is the logical put-in point for floatboaters and possesses the same outstanding values associated with the remainder of the river. The Nonvianuk River, the main tributary of the Alagnak, lies entirely within the proposed Katmai National Park.

The lower segment of the Copper River flows primarily through dual D-2/Village and Regional Corporation withdrawals, whereas most of the "middle" Copper and the first 20 miles at the upper end of the proposal is Native select land. However, the confluence with the Chitina River is near the Village of Chitina, a logical put-in for boaters. A logical take-out below Chitina is the Copper River Highway near the proposed forest boundary.

Those rivers or segments lying entirely outside proposed parks or refuges generally flow across lands not selected by the Natives or the State of Alaska. These lands are D-2 corridors set aside by the Secretary of the Interior, D-1 lands, lands withdrawn for utility corridors, or National Petroleum Reserve-Alaska lands. Termini were generally chosen to avoid large Native and State land selections. The Bureau of Land Management is expected to administer these units of the system.

There are a number of exceptions to the above rules with respect to termini. The ending points for Birch and Beaver Creeks and the Utukok River were chosen because the lower segments do not have outstandingly remarkable qualities when compared to other rivers. In the case of Birch Creek, there is a logical take-out point at the confluence with Jump-off Creek as well. Umiat was selected for the Colville because it is a logical take-out point, and because of land conflicts below this point. Approximately the upper 15 miles of the Kisaralik River, from its outlet at Kisaralik Lake, flow through State land. This segment was included within the recommendation

because the lake is the logical put-in point for floatboaters and it possesses the same outstanding values associated with the remainder of the river. The lower end flows through Native selected land.

Sincerely yours,

A handwritten signature in cursive script, reading "Cynthia Wilson".

Cynthia Wilson
Assistant to the Secretary

Enclosure

RIVERS COMPLETELY INSIDE PROPOSED PARKS OR REFUGES

539

<u>River</u>	<u>Start</u>	<u>End</u>	<u>Classification</u>
Alatna	Head of drainage	Gates of the Arctic Park boundary	Wild
Andreafsky	Head of drainage	Confluence with Yukon	Wild
East Fork	Head of drainage	Confluence with mainstem	Wild
Aniakchak	Outlet of Surprise Lake	Mouth	Wild
Hidden Creek	Head of drainage	Confluence with mainstem	Wild
Mystery Creek	Head of drainage	Confluence with mainstem	Wild
Albert Johnson Cr	Head of drainage	Confluence with mainstem	Wild
North Fork	Head of drainage	Confluence with mainstem	Wild
Brenner		Mouth	Wild
North Fork	Terminus of glacier	Confluence with mainstem	Wild
Middle Fork	Terminus of glacier	Confluence with mainstem	Wild
South Fork	Terminus of glacier	Confluence with mainstem	Wild
Charley	Head of drainage	Mouth	Wild
Copper Creek	Head of drainage	Confluence with mainstem	Wild
Lonanza Creek	Head of drainage	Confluence with mainstem	Wild
Hosford Creek	Head of drainage	Confluence with mainstem	Wild
Derwent Creek	Head of drainage	Confluence with mainstem	Wild
Flat-Orthmer Cr	Head of drainage	Confluence with mainstem	Wild
Crescent Creek	Head of drainage	Confluence with mainstem	Wild
Moraine Creek	Head of drainage	Confluence with mainstem	Wild

Chilikadrctna	Outlet of Twin Lakes	Confluence with Mulchatna	Wild
Chitina	Terminus of glacier	Confluence with Copper River	Wild
Ivishak	Head of drainage	Arctic Nat. Wildlife Refuge boundary	Wild
Unnamed	Outlet of Porcupine Lake	Confluence with mainstem	Wild
John	Confluence of Contact & Inukpasugruk Creeks	Gates of the Arctic Park boundary	Wild
Kanektok	Outlet of Kagati Lake	Mouth	Wild
Kobuk	Head of drainage	Gates of the Arctic Park boundary	Wild
Unnamed tributary	Outlet of Walker Lake	Confluence with mainstem	Wild
Mulchatna	Outlet of Turquoise Lake	Lake Clark Preserve boundary	Wild
Noatak	Head of drainage	Confluence with Kelly River	Wild
North Fork Koyukuk	Head of drainage	Confluence with Middle Fork Koyukuk	Wild
Porcupine	U.S.- Canadian border	Confluence with Yukon	Wild
Salmon	Head of drainage	Confluence with Kobuk	Wild
Sheenjek	Head of drainage	Confluence with Porcupine	Wild
Tinayguk	Head of drainage	Confluence with North Fork Koyukuk	Wild
Tlikakila	Outlet of Summit Lake	Mouth	Wild
Wind	Head of drainage	Confluence with East Fork Chandalar	Wild
Unnamed tributary in T 13 S, R 19-20 E.	Head of drainage	Confluence with mainstem	Wild

RIVERS PARTLY OR COMPLETELY OUTSIDE OTHER D-2 PROPOSALS

<u>River</u>	<u>Start</u>	<u>End</u>	<u>Classification</u>
1. Alagnak	Outlet of Kukaklet Lake in T 12 S, R 37 W, Seward Meridian	West boundary of T 13 S, R 43 W, Seward Meridian	Wild
Nonvianuk	Outlet of Nonvianuk Lake in T 13 S, R 38 W, SM	Mouth	Wild
2. Beaver Creek	Confluence of Bear & Champion Creeks in T 7 N, R 4 E, Fairbanks Meridian	Southern boundary of proposed Yukon Flat NWR	Wild
3. Birch Creek	South side of Steese Highway ub T 7 N, R 10 E, FM	Birch Cr - Jumpoff Cr. confluence	Wild
4. Colville	Confluence of Storm & Thunder Creeks in T 7 S, R 36 W, Umiat Meridian	Umiat	Wild
5. Copper Upper	South limit of Sec 17 & 18 T 5 N, R 9 E, Copper River Meridian	Where the Wrangell St-Elias National Preserve boundary crosses the Copper in T 10 N, R 5 E, CRM	Wild
Lower	Confluence with the Chitina River	Boundary of Chugach National Forest (extended)	Wild
6. Delta	Upper Tangle Lake	Outlet of Lower Tangle Lake	Scenic
	Outlet of Lower Tangle Lake	Point opposite milepost 212 on Richardson Highway	Wild
	Point opposite milepost 212	North limit of Sec. 17, T 16 S, R 10 E., FM	Scenic

7. Fortymile

Mainstem	Confluence of North & South Forks	Canadian border	Scenic
O'Brien Cr.	Confluence of Liberty Fork & King Solomon Creek	Mouth	Scenic
South Fork	Confluence of Mosquito & Dennison Forks	Mouth	Scenic
Napoleon Cr.	Confluence of two tributary branches in Sec. 1 T 27 N, R 19 E, CRM	Mouth	Scenic
Franklin Cr.	Source, in Sec. 36, T 28 N, R 17 E, CRM	Mouth	Scenic
Uhler Cr.	Confluence of two tributary branches in Sec. 24, T 8 S, R 31 E, FM	Mouth	Scenic
Walker Fork	Confluence with Liberty Creek	Mouth	Scenic
Wade Creek	Confluence of Grace and Warner Creek	Mouth	Recreational
Mosquito Fork	Confluence of Mosquito Fork & Kechumstuk Creek	Confluence with Ingle Cr.	Wild
Mosquito Fork	Confluence with Ingle Creek	Mouth	Scenic
West Fork Dennison Fk.	Confluence with Logging Cabin Creek	Mouth	Scenic
Dennison Fork	Confluence with WF Dennison Fork	Mouth	Scenic
Logging Cabin Cr.	Confluence of two tributary branches in Sec. 11, T 22 N, R 16 E, CRM	Mouth	Scenic
North Fork	Confluence of Independence Creek and Slate Creek	Mouth	Wild
Hutchinson Creek	Source in Sec. 6, T 8 S, R 28 E, FM	Mouth	Scenic
Champion Creek	North limit of Sec 1, T 4 S, R 30 E, FM	Mouth	Wild
Middle Fork	Confluence with Joseph Creek	Mouth	Wild
Joseph Creek	Confluence with two tributaries in Sec 7, T 5 S, R 22 E, FM	Mouth	Wild

8. Gulkana

Mainstem	Outlet of Paxson Lake in T 12 N, R 2 W, CRM	Confluence with Sourdough Cr. in T 9 N, R 2 W, CRM	Wild
Middle Fork	Outlet of Dickey Lake in T 13 N, R 5 W, CRM	Mouth	Wild
West Fork (south Branch)	Outlet of unnamed lake in Sec. 10 & 15 T 10 N, R 7 W, CRM	Mouth	Wild
North Branch	Outlet of two unnamed lakes, one in Sec. 24 & 25, the second in Sec. 9 & 10, T 11 N, R 8 W, CRM	Mouth	Wild

9. Killik

Mainstem	Head of drainage	Confluence with Colville River	Wild
Easter Creek	Head of drainage	Mouth	Wild
10. Kisarialik	Outlet of Kisarialik Lake in T 3 N, R 58 W, SM	West boundary of T 8 N R 65 W, SM	Wild
11. No:itna	West boundary of T 18 S, R 22 E, Kateel River Meridian	Confluence with Yukon River	Wild
12. Unalakleet	Mainstem beginning at east boundary of T 14 S, R 4 W.	Mainstem ending at west boundary of T 18 S, R 8 W.	Wild
13. Utukok	Confluence of Tupik & Kogruk Creeks in T 10 S, R 39 W, UM	Unnamed tributary flowing from the south in T 5 N, R 36 W, UM	Wild



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

April 20, 1978

NOTE: The attached material is from a report recently received from the University of Alaska.

The first item is the Dall sheep chapter from the full report. Note comments on effects of sport hunting.

The second item is the entire supplementary report addressing Dall sheep kill in the House Interior Subcommittee (and full Committee) park/preserve boundary. Approximately two-thirds of the sheep kill area is in the preserve and one-third in the park.

Roger J. Contor
Assistant to the Director for Alaska
National Park Service



**HUNTING ACTIVITY AND
HARVEST IN THE WRANGELL-
ST. ELIAS REGION, ALASKA
1973-1977**

**FINAL REPORT FOR THE
NATIONAL PARK SERVICE
CONTRACT No. CX-9000-6-0154**

**SUPPLEMENT I. HUNTING OF DALL
SHEEP IN RELATION TO THE HOUSE
SUBCOMMITTEE'S PROPOSAL FOR A
WRANGELL-ST. ELIAS NATIONAL
PARK/PRESERVE**

**EDWARD C. MURPHY AND
FREDERICK C. DEAN**

FEBRUARY 1978

**Biology and Resource Management Program
Alaska Cooperative Park Studies Unit
University of Alaska
Fairbanks, Alaska 99701**

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INTRODUCTION

In the original report (Murphy and Dean 1978) we related hunting activity, as reported by hunters to the Alaska Department of Fish and Game (ADF&G), to the recommendations made by Cecil D. Andrus, Secretary of the Interior, before the U.S. Congress in September 1977 for a Wrangell-St. Elias National Park/Preserve. Dall sheep (*Ovis dalli*) are the focus of considerable hunting activity in the Wrangell-St. Elias region. Here we supplement our analyses (see Murphy and Dean 1978) of hunting of this species, relating hunting activity to boundaries of the park and preserve as proposed on 27 January 1978 by the U.S. House Subcommittee on General Oversight and Alaska Lands, John Seiberling, Chairman.

METHODS AND MATERIALS

The boundaries of the subcommittee proposal (Subcommittee Print #3) are shown in Figure 1. As proposed the park would include 8.6 million acres and the preserve 3.3 million acres, compared to the 9.7 million acres proposed as park and 2.3 million acres proposed as preserve by Interior Secretary Andrus. Methods and materials duplicate those of the original report, except for coding of hunting locations in relation to the subcommittee proposal (see Appendix).

RESULTS AND DISCUSSION

For detailed analyses of hunting of Dall sheep in the Wrangell-St. Elias region see the original report (Murphy and Dean 1978). Here we report (1) hunting activity in relation to the subcommittee proposal and (2) compare this proposal with that recommended by Interior Secretary Andrus in September 1977.

Sheep Hunting in Relation to the Subcommittee Proposal

Between 21% and 48% ("park" plus "park or preserve") of the Dall sheep hunters in the study area hunted within the boundaries of the proposed park; 47% to 75% hunted in the proposed preserve (Table 1A). Comparing the park and preserve values only, the proposed preserve supported 2.2 times as many sheep hunters, and 2.1 times the harvest, as the proposed park. Hunters enjoyed comparable success in these two regions (Table 1C, D).

Within each residency class about half the hunters in the entire study area hunted within the preserve, and that area supported more hunters of all residency classes than did the proposed park. Relatively few local residents and foreign non-residents hunted in the park compared to the proportion of other Alaskans and U.S. non-residents who hunted there (Table 2A, D). Within a particular residency class hunters in the park and preserve had equivalent success in their hunts (Table 2C, E).

In both the proposed park and the proposed preserve the majority of hunters used airplane access to sheep hunting areas (Table 3A). However, in proportion to the total number of hunters in each region, those hunting in the proposed park relied on airplanes more frequently and off-road or highway vehicles less frequently than did hunters in the preserve. The Nabesna and McCarthy roads provide access to sheep habitat for hunters using highway or off-road vehicles. These roads are almost entirely within the proposed preserve, whereas most sheep habitat in the proposed park is remote. Airplanes or horses provide access to remote areas for most users.

Non-local Alaskans hunting in the proposed preserve relied more heavily on highway vehicles and were transported by airplane less frequently than members of this resident class hunting in the proposed park (Table 4A, B, C). In contrast, U.S. non-residents used various transportation modes in comparable frequencies in the proposed park and preserve. As accessibility to remote areas in the proposed preserve is similar to most sheep habitat in the proposed park, the results indicate that most non-residents hunted in remote areas of the proposed preserve, while many residents hunted near the road systems. Individuals hunting in the proposed park had comparable success to that of members of the same resident class who used the same transportation modes and hunted in the proposed preserve (Table 4H).

Both successful hunts and unsuccessful hunts were longer in the proposed park than in the proposed preserve (Table 5). Individuals using off-road or highway vehicles hunted fewer days in both regions than did those using airplane or horse access. As hunters using highway or off-road vehicles also had poor success relative to other hunters, they apparently hunted sheep more casually than hunters who travelled to more remote areas.

Average horn length of rams harvested in the proposed park was greater than that of those harvested in the proposed preserve (Table 6). The harvest of rams with 40 inch or longer horns roughly approximates the harvest of rams of Boone and Crockett record book stature, i.e. of "trophy" size Dall sheep. Nearly half of the harvest of such rams in the study area during the four-season study period was within proposed park boundaries, in the upper Chitina River valley (Table 7).

Comparison of the USDI and Subcommittee Proposals

The subcommittee proposal includes roughly one million acres as preserve which were proposed as park in the USDI recommendations. Virtually all of this acreage is inhabited by Dall sheep, as it includes the upper portions of the Dadina, Chetaslina, Chesnina, Kotsina, Chisana, and Nabesna River drainages. The only sheep habitat shifted from preserve to park in the subcommittee proposal was that portion of the Kuskulana drainage below the Kuskulana Glacier. Several minor differences in proposed boundaries, e.g. in the vicinity of Hawkins Glacier and Nikolai

Butte, reflect better coincidence between boundaries as delineated in the subcommittee proposal and ADF&G subunit boundaries than between the latter and the USDI-recommended boundaries. Consequently many hunts which could not be clearly assigned to proposed park or preserve in relation to the USDI proposal could be assigned unequivocally to either park or preserve as proposed by the subcommittee.

Table 8 summarizes Dall sheep hunting in relation to both proposals. Clearly the boundary changes improved our ability to code hunting locations: about twice as many hunts were assigned to "park or preserve" in evaluating hunting in relation to the USDI proposal as were assigned to this category in analyses of hunting in relation to the subcommittee proposal. Most hunt locations coded as "park or preserve" in relation to the USDI proposal and assigned a different code in relation to the subcommittee's proposal were reassigned to preserve. The decreases in acreage of the proposed park resulted in decreases in both number of hunters and harvest there. The values for the park as proposed by the subcommittee represent 87% of the hunts and 85% of the harvest that occurred within the park boundaries proposed by the USDI.

Comparing the two proposals, the differences in use of various regions were shared equally by all residency classes. Airplane access was used by proportionately more hunters in the preserve as proposed by the subcommittee than as proposed by the USDI (Table 8C). This shift simply reflects inclusion of several areas which are far from road systems in the proposed preserve. Numbers of hunters using highway or off-road vehicles were greater in the park as proposed by the subcommittee than as proposed by the USDI, even though the total number of hunters there was lower. This shift reflects incorporation of the entire Kuskulana drainage as park in the subcommittee proposal; this area is accessible from the McCarthy Road to hunters using highway or off-road vehicles.

The harvest of 40 inch rams in park regions was comparable for both proposals, as there are no major boundary differences in the upper Chitina River valley. The difference in "preserve" and "park or preserve" values (Table 8D) reflects our ability to code unequivocally hunt locations in the vicinity of Hawkins Glacier as "preserve" in relation to the subcommittee proposal but not in relation to the USDI proposal.

In summary, the subcommittee proposal includes considerable tundra habitat in the preserve that was proposed as park in the USDI recommendations. This resulted in a shift of a minimum of 15% of the hunts and harvest from "park" to "preserve". Additionally the park/preserve boundary as proposed by the subcommittee follows the same geological features in several areas as those which delineate ADF&G subunit boundaries, permitting coding of many hunt locations as proposed preserve which were designated as "park or preserve" in relation to the USDI proposal. however, much of the park/preserve boundary as proposed by the subcommittee, like much of the boundary as proposed by the USDI, does not follow geomorphic features which inhibit movements of Dall sheep and other

ungulates. Consequently many individual animals range on both sides of both proposed boundaries, creating potential for conflict between hunters and non-consumptive users.

LITERATURE CITED

- Murphy, E. C. and F. C. Dean. 1978. Hunting activity and harvest in the Wrangell-St. Elias region, Alaska: 1973-1977. Final Report for the National Park Service, Contract CX-9000-6-0154. Alaska Cooperative Park Studies Unit, University of Alaska, Fairbanks.

TABLE 1. Dall sheep: hunting in relation to the Subcommittee proposal.

Area	Season				
	1973-74	1974-75	1975-76	1976-77	Total
<u>A. Number of Hunters</u>					
Park	193 (23) ¹	139 (21)	141 (21)	154 (20)	627 (21)
Preserve	382 (45)	312 (48)	325 (47)	373 (49)	1392 (47)
Park or Preserve	243 (29)	168 (26)	199 (29)	194 (26)	804 (27)
Preserve or AEC	4 (1)	5 (1)	1 (tr) ²	15 (2)	25 (1)
AEC	23 (3)	27 (4)	21 (3)	20 (3)	91 (3)
Total	845 (100)	651 (100)	687 (100)	756 (100)	2939 (100)
<u>B. Number of Successful Hunters (Harvest)</u>					
Park	113 (30)	85 (23)	69 (22)	74 (22)	341 (24)
Preserve	180 (48)	173 (47)	174 (55)	177 (53)	704 (50)
Park or Preserve	69 (18)	79 (22)	63 (20)	68 (20)	279 (20)
Preserve or AEC	2 (1)	4 (1)	0	5 (2)	11 (1)
AEC	12 (3)	25 (7)	13 (4)	11 (3)	61 (4)
Total	376 (100)	366 (100)	319 (100)	335 (100)	1396 (100)
<u>C. Success Rates (%)</u>					
Park	59	61	49	48	54
Preserve	47	55	54	47	51
Park or Preserve	28	47	32	35	35
Preserve or AEC	50	80	0	33	44
AEC	52	93	62	55	67

D. Differences Between Park and PreserveSuccess rate: $\chi^2 = 1.213$, n.s.

column percent.

Trace: less than 1/2 of 1%.

TABLE 2. Dall sheep: residency status of hunters in relation to the Subcommittee proposal.

Area	Alaska Residents		Non-residents	
	Local ¹	Other	U.S.	Foreign
<u>A. All Hunters</u>				
Park	13 (8) ²	393 (22)	208 (24)	6 (12)
Preserve	103 (63)	863 (48)	371 (43)	29 (56)
Park or Preserve	32 (20)	506 (28)	248 (29)	12 (23)
Preserve or AEC	3 (2)	20 (1)	2 (tr) ³	0
AEC	12 (7)	33 (2)	39 (5)	5 (10)
Total	163 (100)	1815 (100)	868 (100)	52 (100)
<u>B. Successful Hunters</u>				
Park	4 (7)	167 (27)	163 (25)	5 (12)
Preserve	44 (72)	325 (52)	303 (46)	23 (55)
Park or Preserve	8 (13)	108 (17)	152 (23)	9 (21)
Preserve or AEC	2 (3)	7 (1)	2 (tr)	na ⁴
AEC	3 (5)	17 (3)	34 (5)	5 (12)
Total	61 (100)	624 (100)	654 (100)	42 (100)
<u>C. Success Rates (%)</u>				
Park	31	42	78	83
Preserve	43	38	82	79
Park or Preserve	25	21	61	75
Preserve or AEC	67	35	100	na
AEC	25	52	87	100
<u>D. Differences in Use</u>				
Park vs. Preserve				
Local residents: $\chi^2 = 69.828$, $P < 0.005$.				
Other Alaskans: $\chi^2 = 175.876$, $P < 0.005$.				
U.S. non-residents: $\chi^2 = 45.888$, $P < 0.005$.				
Foreign non-residents: $\chi^2 = 15.114$, $P < 0.005$.				
Local residents vs. other Alaskans				
Park: $\chi^2 = 13.632$, $P < 0.005$.				
Preserve: $\chi^2 = 7.493$, $P < 0.025$.				
Local residents vs. U.S. non-residents				
Park: $\chi^2 = 16.364$, $P < 0.005$.				
Preserve: $\chi^2 = 12.481$, $P < 0.005$.				
Other Alaskans vs. U.S. non-residents				
Park: $\chi^2 = 1.399$, n.s.				
Preserve: $\chi^2 = 2.949$, n.s.				

TABLE 3. Dall sheep: transportation used by hunters in relation to the Subcommittee proposal.

Transportation	Park	Preserve	Park or Preserve	Preserve or AEC	AEC
<u>A. All Hunters</u>					
Airplane	457 (76) ¹	782 (60)	526 (71)	5 (22)	45 (51)
Horse	55 (9)	149 (11)	53 (7)	2 (9)	18 (20)
Boat	2 (tr) ²	9 (1)	3 (tr)	0	0
Motorbike	8 (1)	6 (1)	9 (1)	1 (4)	0
Off-road vehicle	44 (7)	67 (5)	48 (7)	9 (39)	14 (16)
Highway vehicle	35 (6)	293 (22)	105 (14)	6 (26)	12 (14)

<u>B. Successful Hunters</u>					
Airplane	266 (79)	516 (74)	227 (82)	2 (20)	37 (62)
Horse	42 (13)	103 (15)	34 (12)	2 ₃ (20)	12 (20)
Boat	0	4 (1)	0	na	na
Motorbike	0	0	2 (1)	0	na
Off-road vehicle	17 (5)	16 (2)	8 (3)	3 (30)	6 (10)
Highway vehicle	12 (4)	56 (8)	5 (2)	3 (30)	5 (8)

<u>C. Success Rates (%)</u>					
Airplane	58	66	43	40	82
Horse	76	69	64	100	67
Boat	0	44	0	na	na
Motorbike	0	0	22	0	na
Off-road vehicle	39	24	17	33	43
Highway vehicle	34	19	5	50	42

D. Differences in Access

Park vs. Preserve

Airplane: $\chi^2 = 16.549$, $P < 0.005$.Horse: $\chi^2 = 1.961$, n.s.Off-road vehicle: $\chi^2 = 3.394$, n.s.Highway vehicle: $\chi^2 = 66.031$, $P < 0.005$.E. Differences in Success

Park vs. Preserve

Airplane: $\chi^2 = 2.765$, n.s.Horse: $\chi^2 = 0.296$, n.s.Off-road vehicle: $\chi^2 = 1.945$, n.s.Highway vehicle: $\chi^2 = 3.472$, n.s.

TABLE 3. Continued.

¹Column percent.

²Trace: less than 1/2 of 1%.

³Not applicable: no hunters in given region used given transportation.

TABLE 4. Dall sheep: residency status and transportation of hunters in the proposed park and preserve.

Transportation ¹	Alaska Resident		Non-resident	
	Local ²	Other	U.S.	Foreign
<u>A. Park: All Hunters</u>				
Airplane	8 (67) ³	278 (74)	161 (79)	4 (67)
Horse	2 (17)	15 (4)	36 (18)	2 (33)
Off-road vehicle	1 (8)	40 (11)	3 (2)	0
Highway vehicle	0	32 (9)	3 (2)	0
Sum	11 (92)	365 (98)	203 (100)	6 (100)
<u>B. Preserve: All Hunters</u>				
Airplane	37 (45)	439 (55)	271 (74)	20 (69)
Horse	18 (22)	35 (4)	86 (24)	9 (31)
Off-road vehicle	5 (6)	62 (8)	0	0
Highway vehicle	19 (23)	256 (32)	10 (3)	0
Sum	79 (96)	792 (99)	367 (100)	29 (100)
<u>C. Park: Successful Hunters (Harvest)</u>				
Airplane	2 (50)	129 (78)	130 (81)	3 (60)
Horse	2 (50)	10 (6)	28 (17)	2 ⁴ (40)
Off-road vehicle	0	15 (9)	2 (1)	na
Highway vehicle	na	11 (7)	1 (1)	na
Sum	4 (100)	165 (100)	161 (100)	5 (100)
<u>D. Preserve: Successful Hunters</u>				
Airplane	25 (60)	241 (75)	224 (74)	18 (78)
Horse	9 (22)	19 (6)	70 (23)	5 (22)
Off-road vehicle	2 (5)	14 (4)	na	na
Highway vehicle	3 (7)	45 (14)	7 (2)	na
Sum	39 (95)	319 (99)	301 (100)	23 (100)
<u>E. Park: Success Rate (%)</u>				
Airplane	25	46	81	75
Horse	100	67	78	100
Off-road vehicle	0	38	67	na
Highway vehicle	na	34	33	na
<u>F. Preserve: Success Rate (%)</u>				
Airplane	68	55	83	90
Horse	50	54	81	56
Off-road vehicle	40	23	na	na
Highway vehicle	16	18	70	na

TABLE 4. Continued.

G. Differences in Access and Use

Park vs. Preserve

Other Alaskans

Airplane: $\chi^2 = 16.192$, $P < 0.005$.

Horse: values equivalent.

Off-road vehicle: $\chi^2 = 2.604$, n.s.Highway vehicle: $\chi^2 = 56.730$, $P < 0.005$.

U.S. non-residents

Airplane: $\chi^2 = 0.516$, n.s.Horse: $\chi^2 = 1.984$, n.s.H. Differences in Success

Park vs. Preserve

Other Alaskans

Airplane: $\chi^2 = 2.380$, n.s.Horse: $\chi^2 = 0.278$, n.s.

U.S. non-residents

Airplane: $\chi^2 = 0.045$, n.s.¹ Listings include only those transportation modes if sample sizes were ten or more in both park and preserve.² Resident of GMU 11 or 12 portions of the study area.³ Column percent of all transportation listed for a given resident class.⁴ Not applicable.

TABLE 5. Dall sheep: hunt length in relation to the Subcommittee proposal.

	Hunt Duration in Days	
	Successful Hunters	Unsuccessful Hunters
<u>A. Regions</u>		
Park	5.45 ± 3.97 (395) ¹	6.32 ± 3.29 (336)
Preserve	4.78 ± 3.80 (693)	5.52 ± 3.67 (654)
Park or Preserve	5.23 ± 3.81 (215)	5.73 ± 3.36 (426)
Preserve or AEC	5.00 ± 2.53 (11)	4.62 ± 2.36 (13)
AEC	4.56 ± 2.95 (61)	6.37 ± 3.91 (30)
<u>B. Regional Residency Status</u>		
<u>Park</u>		
Local Residents ²	6.25 ± 5.12 (4)	3.56 ± 1.33 (9)
Other Alaskans	5.15 ± 4.30 (210)	6.31 ± 3.21 (264)
U.S. Non-residents	5.42 ± 3.50 (175)	6.82 ± 3.72 (55)
Foreign Non-residents	6.75 ± 4.79 (4)	10.00 ± 0.00 (1)
<u>Preserve</u>		
Local Residents	5.16 ± 2.77 (44)	4.90 ± 3.92 (58)
Other Alaskans	4.84 ± 4.52 (319)	5.25 ± 3.32 (509)
U.S. Non-residents	4.74 ± 3.17 (299)	8.06 ± 4.26 (64)
Foreign Non-residents	3.70 ± 2.48 (23)	5.83 ± 3.19 (6)
<u>C. Transportation³</u>		
<u>Park</u>		
Airplane	5.52 ± 4.04 (317)	6.42 ± 3.14 (236)
Horse	6.07 ± 4.12 (42)	8.08 ± 4.55 (13)
Off-road Vehicle	4.35 ± 2.74 (20)	5.46 ± 2.37 (26)
Highway Vehicle	3.17 ± 2.76 (12)	6.19 ± 3.91 (27)
<u>Preserve</u>		
Airplane	4.65 ± 3.67 (509)	6.40 ± 3.50 (580)
Horse	5.68 ± 4.81 (102)	8.80 ± 6.28 (41)
Off-road Vehicle	4.56 ± 2.61 (16)	4.92 ± 2.30 (49)
Highway Vehicle	4.13 ± 3.20 (54)	4.18 ± 2.12 (228)

¹Mean ± standard deviations; sample size is in parentheses.

²A hunter residing in GMU 11 or GMU 12 portions of the study area.

³Other access modes listed infrequently and omitted.

TABLE 6. Dall sheep: horn size in relation to the Subcommittee proposal.

	Rank ¹	Horn Length in Inches	
<u>A. Areas</u>			
Park	3	33.90 ± 3.99	(388) ²
Preserve	2	33.50 ± 3.63	(655)
Park or Preserve	5	34.63 ± 3.54	(202)
Preserve or AEC	1	30.63 ± 4.42	(10)
AEC	4	34.14 ± 3.03	(57)
		<u>Park</u>	<u>Preserve</u>
<u>B. Regional Residency</u>			
Local Residents ³		35.25 ± 6.65 (4)	33.60 ± 4.08 (37)
Other Alaskans		33.32 ± 4.12 (202)	32.60 ± 3.74 (299)
U.S. Non-residents		34.54 ± 3.67 (176)	34.38 ± 3.14 (290)
Foreign Non-residents		33.81 ± 2.76 (4)	34.06 ± 3.87 (21)
<u>C. Transportation (if sample size ten or more)</u>			
Airplane		34.22 ± 4.05 (313)	33.77 ± 3.57 (478)
Horse		33.13 ± 2.97 (41)	33.24 ± 3.16 (99)
Off-road Vehicle		31.43 ± 3.99 (20)	32.14 ± 5.87 (14)
Highway Vehicle		31.33 ± 3.06 (10)	31.94 ± 3.80 (51)
<u>D. Regional Residency: Airplane-transported hunters only</u>			
Local Residents		40.50 ± 2.12 (2)	33.56 ± 4.11 (34)
Other Alaskans		33.70 ± 4.12 (166)	32.86 ± 3.69 (222)
U.S. Non-residents		34.76 ± 3.88 (141)	34.69 ± 3.08 (212)
Foreign Non-residents		34.50 ± 2.12 (2)	34.84 ± 3.97 (16)

¹Means were ordered for tests of differences using the Student-Newman-Keuls Procedure. Average horn length in "Preserve or AEC" region was less than that in every other region. Average horn length was greater in the park than in the preserve (P<0.05).

²Mean ± standard deviation, sample size is in parentheses.

³An individual residing in GMU 11 or GMU 12 portion of the study area.

TABLE 7. Dall sheep: harvest of rams with horns 40 inches or longer in relation to the Subcommittee proposal.

	Region ¹			
	Park	Preserve	Park or Preserve	AEC
<u>A. Season</u>				
1973-74	11 (42) ²	12 (46)	3 (12)	0
1974-75	9 (47)	5 (26)	4 (21)	1 (5)
1975-76	5 (50)	3 (30)	2 (20)	0
1976-77	5 (42)	2 (17)	5 (42)	0
Total	30 (45)	22 (33)	14 (21)	1 (2)
<u>B. Regional Residency Status</u>				
Local Residents ³	1 (50)	1 (50)	0	0
Other Alaskans	14 (47)	7 (23)	9 (30)	0
U.S. Non-residents	15 (47)	11 (34)	5 (16)	1 (3)
Foreign Non-residents	0	2 (100)	0	0
<u>C. Transportation</u>				
Airplane	29 (52)	14 (25)	13 (23)	0
Horse	0	3 (60)	1 (20)	1 (20)
Off-road Vehicle	0	2 (100)	0	0
Highway Vehicle	0	2 (100)	0	0

¹No 40 inch rams were harvested in the "Preserve or AEC" region.

²Row percent.

³Individual residing in GMU 11 or GMU 12 portions of study area.

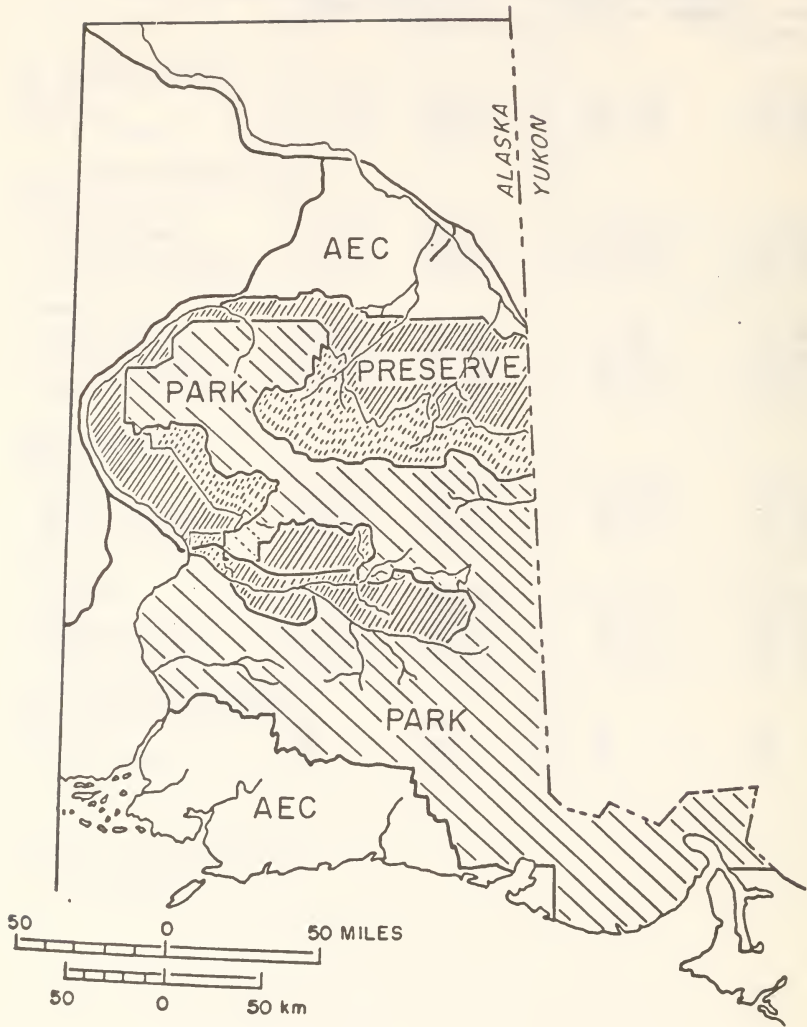
TABLE 8. Dall sheep: hunting in relation to the Subcommittee proposal vs. the USDI recommendations.

	Number of Hunters		Number of Successful Hunters	
	USDI	Subcommittee	USDI	Subcommittee
<u>A. Number of Hunters</u>				
Park	719 (25) ¹	627 (21)	403 (29)	341 (24)
Preserve	479 (16)	1392 (47)	188 (14)	704 (50)
Park or Preserve	1625 (55)	804 (27)	733 (53)	279 (20)
<u>B. Regional Residency Status</u>				
<u>Park</u>				
Local Residents	16 (2) ²	13 (2)	7 (2)	4 (1)
Other Alaskans	453 (64)	393 (63)	206 (51)	167 (49)
U.S. Non-residents	234 (33)	208 (34)	181 (45)	163 (48)
Foreign Non-residents	8 (1)	6 (1)	7 (2)	5 (2)
<u>Preserve</u>				
Local Residents	52 (11)	103 (8)	14 (8)	44 (6)
Other Alaskans	310 (66)	863 (63)	86 (46)	325 (47)
U.S. Non-residents	106 (23)	371 (27)	83 (45)	303 (44)
Foreign Non-residents	3 (1)	29 (2)	3 (2)	23 (3)
<u>C. Transportation</u>				
<u>Park</u>				
Airplane	586 (85)	457 (76)	338 (85)	266 (79)
Horse	57 (8)	55 (9)	43 (11)	42 (13)
Off-road Vehicle	34 (5)	44 (7)	14 (4)	17 (5)
Highway Vehicle	13 (2)	35 (6)	4 (1)	12 (4)
<u>Preserve</u>				
Airplane	146 (33)	782 (60)	101 (54)	516 (74)
Horse	62 (14)	149 (11)	38 (20)	103 (15)
Off-road Vehicle	42 (10)	67 (5)	8 (4)	16 (2)
Highway Vehicle	180 (41)	293 (22)	36 (19)	56 (8)
<u>D. Harvest of 40 inch Rams</u>				
Park	na	na	29	30
Preserve	na	na	7	21
Park or Preserve	na	na	30	14

¹ Percent of study area total.² Column percent.

Figure 1. The Wrangell-St. Elias National Park/Preserve as proposed in Subcommittee Print #3. Broken lines depict areas given different status in the Subcommittee proposal from that recommended by the USDI.







**HUNTING ACTIVITY AND
HARVEST IN THE WRANGELL-
ST. ELIAS REGION, ALASKA
1973-1977**

**FINAL REPORT FOR
CX-9000-6-0154**

**EDWARD C. MURPHY AND
FREDERICK C. DEAN**

JANUARY 1978

**Biology and Resource Management Project
Alaska Cooperative Park Studies Unit
University of Alaska
Fairbanks, Alaska 99701**

DALL SHEEP

Dall sheep are common to abundant in alpine tundra habitats within the study area. A. Smith and W. Heimer (ADF&G, Fairbanks, unpubl. ms.) have compiled all ADF&G survey data in the Wrangell Mountains (including the Mentasta and Nutzotin Mountains). Most sheep habitat there has been surveyed in the past decade. On the basis of these surveys Smith and Heimer estimated that 12,000 Dall sheep inhabit these mountain ranges.

Smith and Heimer also calculated densities in "likely sheep habitat." Their results indicated that densities north of the crest of the Wrangell Mountains were higher, averaging 0.86 sheep/km², than those to the south, which averaged 0.66/km². However population numbers and densities may fluctuate markedly; in other ranges declines have occurred during winters of heavy snowfall when access to food was restricted (e.g. Murphy and Whitten 1976). Dall sheep habitat in the portion of the Chugach Mountains within the study area has not been surveyed extensively. Numbers and densities there are probably an order of magnitude lower than in the Wrangell Mountains.

Open seasons and bag limits for Dall sheep remained constant during the study period: a hunter could harvest one ram with 3/4 curl or larger horns between 10 August and 20 September, inclusive.

From 1967 through 1976, the Wrangells supported 21% of the sheep hunters and 29% of the harvest of Dall sheep in Alaska. Sheep hunting emphasis within the Wrangells has shifted during the past decade. Those individuals hunting north of the crest of the Wrangells constituted 78% of all sheep hunters in the Wrangells in 1968 but only 58% in 1976. Conversely the number of sheep hunters in the upper Chitina Valley increased from 34 in 1968 to 160 in 1976, constituting 9 and 21%, respectively, of the total number of hunters in the Wrangells. Smith and Heimer's tabulations show that harvest has shifted as well.

The study area has produced exceptional trophies. Sixty-eight of the top 200 listings in the Boone and Crockett Club records (Nesbitt and Parker 1977:317-323) were from the Wrangell Mountains. As the locality designations of the records were imprecise, we could not determine the number from the Chugach portion of the study area. These figures indicate that at least one-third of the record book Dall sheep have been taken within the study area.

Heimer and Smith (1975) studied geographic patterns in horn size and horn growth rates of Dall sheep in Alaska. They divided the study area into four regions: (1) the

crest of the Wrangells north; (2) southern Wrangells from the Sanford River to the Nizina River; (3) southern Wrangells from the Nizina River to the Chitina River; and (4) the Chugach range from the Copper River to the U.S.-Canada border. Heimer and Smith computed trophy size indices based on growth rates of horn volume and curl. Region 3, as defined above, ranked first in the state by a considerable margin. Regions 1 and 2 ranked fourteenth and sixth, respectively, of all 18 regions in Alaska which could be ranked. Sample sizes from Region 4 were too small to permit ranking. Their figures show that most of the trophy Dall sheep from the study area have come from Region 3.

There is no concrete evidence that harvest under the 3/4 curl regulations has any effect on long term population trends. However, Geist (1977) suggested that culling of most or all males with 3/4 curl or larger horns may increase susceptibility of young males to mortality in winter due to their increased participation in the rut in late fall. Thus heavy hunting under 3/4 curl regulations not only virtually precludes harvest of trophy size rams as few if any are left alive to attain full curl but also may increase mortality of young rams. Several management alternatives could be enacted if reduced harvest and/or realization of large horn, i.e. trophy, potential are desired, e.g. full curl regulations or permit systems. Mortality of rams growing from 3/4 curl to full curl, i.e. from about six to eight years of age, is quite low in unhunted populations (e.g. Murphy and Whitten 1976). Consequently opportunity for hunters under full curl regulations would be equivalent to that under 3/4 regulations. Trophy quality would be enhanced, of course, and the sheep population would be left in a near-natural state (see Geist 1977).

Number of Hunters and Harvest

The number of hunters has been somewhat variable during the study period, averaging 751 (Table 40). Harvest and hunting success have also varied but not in parallel with variation in numbers of hunters. Variation in both number of hunters and harvest partly reflect suitability of weather conditions for sheep hunting.

During the study period 25% of the sheep hunters in Alaska hunted in the study area. Hunters in the study area were far more successful than sheep hunters elsewhere (Table 40C, D), accounting for a disproportionate share of the state harvest (31%).

Most (69%) of the sheep hunters in the study area resided in Alaska (Table 41). Six per cent were local residents, living in either GMU 11 or GMU 12 portions of the study area. About 6% of the non-resident hunters were from foreign countries.

Alaskan residents, while comprising 69% of the hunters, accounted for only 49% of the harvest (Table 41, A, B). Non-residents had much higher success rates than did residents; local residents and other Alaskans had equivalent success rates.

Smith and Heimer (unpubl. ms.) tabulated legal residency status of sheep hunters in Alaska. During the study period only 69% of the sheep hunters in the study area were Alaska residents, compared to 83% elsewhere in Alaska. In the study area the harvest was equally shared by residents and non-residents, elsewhere residents accounted for 63% of the harvest (Table 42). Yet those residents hunting in the study area had better success (34%) than those hunting sheep elsewhere in the state (26%). Non-residents had much better success than residents (76%), but there were no differences between the study area and elsewhere in non-resident success. Thus, overall differences in sheep hunter success between the study area and elsewhere (Table 42C, D) are accounted for by differences in success of resident hunters.

Airplanes were used most often by sheep hunters (Table 43). The remaining hunters used highway vehicles, horses and off-road vehicles in order of decreasing frequency. Those specifying horse transport probably used highway vehicles or airplanes as access to base camps and then horses as transportation to and within sheep habitat.

Hunters transported by airplane and particularly those transported by horse accounted for a disproportionately large share of the harvest. Seventy-five per cent of the hunters used these access modes and accounted for 90% of the harvest (Table 43A, B). Success rates of hunters using off-road vehicles and highway vehicles were relatively low (Table 43C, D). Very little sheep habitat is easily accessible from the road systems, and such habitat probably was subjected to greater hunter densities than areas accessible only by aircraft.

Non-residents used air or horse transportation more often than did residents and rarely used mechanized ground transportation as primary access. Comparing only airplane-transported hunters, Alaskans had lower success rates than did non-residents (Table 44E). By law, non-resident sheep hunters must be accompanied by guides. As guides have usually worked in an area for several years, they certainly can provide surer hunting opportunities than resident Alaskans would have on their own.

In contrast to moose hunters, local residents who hunted sheep had no better success than other Alaskans. Few of the local communities are in sheep habitat. Therefore many local residents probably do not have greater familiarity with the study area than do Alaskans from other areas.

As for other species successful sheep hunts were shorter than unsuccessful hunts (Table 45). Considering successful hunters only, non-residents hunted fewer days than residents. The opposite was true for unsuccessful hunters. Generally guided hunters book multi-species hunts of fixed length, e.g. ten days. As required by law non-resident sheep hunters were guided and were probably focusing their effort on sheep rather than other species. Presumably non-residents hunted for sheep either until successful or the hunting trip was over.

Horn length was reported on Dall sheep harvest tickets throughout the study period. Horn length of rams harvested in the 1973-74 season was longer than in subsequent seasons (Table 46A). Heimer (unpubl. ms.) calculated mean horn length of rams taken in the southeastern Wrangells, that area between the Nizina River and Chitina Glacier, each year from 1968 through 1976. During that period average horn size decreased between one and two inches in that area [mean horn size = $-0.273 (\text{YEAR} - 1967) + 37.36$, $r = -0.885$, $0.01 < P < 0.05$] The decrease in average horn size implies that more young rams are being harvested each year. In the Wrangells rams are generally $3/4$ curl and harvestable at five or six years of age and attain full curl when about seven or eight years old.

Smith and Heimer also tabulated the number of rams harvested which had horns 40" or longer (Fig. 4). This approximates the harvest of trophy class Dall sheep. From 1968 through 1976 42% of all such rams taken in Alaska were from the Wrangell Mountains. Yet during that time the number taken in the Wrangells dropped considerably. During the last two years of the study period only 14 of the 51 (27%) such rams harvested in the state were from the Wrangells, while in the previous seven years 207 of the 539 (38%) taken statewide were from the Wrangells. Declines in trophy quality of the study area are analyzed further in the following section.

Airplane-transported hunters harvested larger-horned rams than hunters using other access. Overall, and among airplane- and horse-transported hunters only, U.S. non-residents harvested rams with larger horns than did non-local Alaskans (see Table 46E).

Dall Sheep Hunting: Regional Variation

As both absolute numbers of sheep and numbers of trophy quality sheep harvested in the study area represent a significant proportion of the statewide total, we have divided the study area into 12 regions for more detailed analysis (Fig. 5, Appendix).

Numbers of hunters, harvest and hunter success in the 12 regions are shown in Table 47. Clearly the study area is heterogeneous in providing hunting opportunity. In five of these regions hunter success was over 60%. These five regions (2, 5, 8, 9, 12) are scattered throughout the study area (Fig. 5). Hunter success was below 50% in only two regions (4, 11). Both are easily accessible from roads and supported high numbers of hunters.

Regional residency status of hunters in each region is given in Table 48. In Regions 4 and 11, where success rates were low, 59% of the hunters were non-local Alaskans; this group comprised 45% of all hunters in the entire study area. Additionally the lowest success rates of non-local Alaskans were in these two regions: 24% in Region 4 and 23% in Region 11. Variation in success rates among regions are in part, but not completely, explained by differences in use by various residency classes.

Two-thirds of the hunters in the entire study area used airplanes (Table 49). In three regions (2, 3, 5) over 90% of the hunters were transported by airplane. Highway vehicles were used by 10% or more of the hunters in four regions (4, 10, 11, 12). As noted earlier, hunter success was exceptionally low in Regions 4 and 11.

Use of horses varied and accounted for 10% or more of all access in only two regions (8, 9). Horses were listed most often by hunters in Region 11, where horse-transported hunters had 64% success, only slightly less than the study area mean of 70%.

Spatial variation in hunter success was related in part to variation in types of access and relative proportions of resident classes. Non-residents hunted most often in regions easily accessible only by airplane, e.g. 2 and 3. The most accessible regions (4, 11) were heavily utilized by resident Alaskans hunting from highway vehicles. Such hunts had low probability of success. Two explanations are plausible: (1) highway vehicles do not provide suitable access, even in Regions 4 and 11 where sheep habitat is several km from roads; and/or (2) easily accessible regions have been so heavily hunted that opportunity was low. Both explanations are apparently implicated as success in Regions 4 and 11 was sometimes but not always comparable to that in other regions for particular access modes and residency classes.

Average horn length of rams harvested during the study period varied among the 12 regions (Table 50). Horn length averaged over 35 inches in Regions 2 and 3 and was larger in Region 2 than all regions but 3. These regions correspond to the area designated by Heimer and Smith as having the best trophy potential in the state. However, as noted

earlier, average horn size there has declined in the past decade.

The quality of each region for trophy hunting was assessed by tabulations of the number of rams harvested in each area with horn length of 40" or greater (Table 51). As noted earlier, this is a rough approximation of the number of rams which approach or would make the Boone and Crockett Club listings. Seventy-five per cent of the 40" rams taken in the study area were from Regions 1-4 which roughly comprise the Chitina River drainages. Region 2, the area from Baldwin Blacier to Barnard Glacier, accounted for 42% of the 40" rams. Nineteen per cent of the rams harvested in that area were 40" or larger. This is clearly an exceptional area for trophy sheep hunting. This and the previous analyses of regional variation demonstrate considerable variation within the study area in hunting activity, harvest, accessibility of sheep habitat, and trophy potential.

Table 51 demonstrates that the trophy quality of the study area dropped from 1973 to 1976. Adjusting for total sample sizes the decline in the number of 40" rams harvested is striking and statistically significant. The reason for the decline in trophy quality is probably simply that hunting intensity has been high and most rams with a 3/4 curl or larger in the accessible areas have been harvested each season. This is an unavoidable consequence of the 3/4 curl regulation: if hunting intensity is high, hunters harvest most legal rams, including those which are just barely legal, leaving few alive to grow to trophy size. The decline in trophy quality could be rectified easily by a full curl regulation or permit system.

Sheep Hunting in Relation to the USDI Proposal

Virtually all of the sheep hunting attempts (99%) could be coded in relation to the USDI proposal. Between 25% and 80% of the sheep hunters in the study area hunted within the boundaries of the proposed park (Table 52A). Numbers of hunters and hunter success rates were much higher in the park than in the preserve (Table 52D). Except for those hunting on the north side of the Mentastas, the only sheep habitat in the AEC, hunters in the park had the highest success rates in the study area (Table 52C).

The large number of hunters and high harvest in the park/preserve boundary region reflects both the unspecificity of the ADF&G location codes, particularly in the Beaver Creek area and Nabesna and Chisana River areas, and the failure of the park/preserve boundary to follow ecogeographic boundaries especially in the northern Chitina River Valley west of McCarthy.

Local residents were the only resident class to hunt and harvest more sheep within the proposed preserve than within the proposed park (Table 53A, B, E). Twice as many non-residents hunted within the proposed park as within the proposed preserve. Non-local Alaskans hunted in the park more frequently than local residents, yet also hunted in the preserve in far greater frequencies than non-residents (Table 53D). Non-local Alaskans were the only group to have significantly better success in the park than in the preserve (Table 53C, E).

In the proposed preserve more hunters used highway vehicles than airplanes, while in all other regions airplanes were used by more hunters than all other access modes combined (Table 54A). There is a strong contrast between park and preserve in access mode. In the preserve off-road or highway vehicles were used by 51% of the hunters; in the park these access modes were used by only 7% of the hunters. This simply relates to proximity of roads to the two regions. The Nabesna and McCarthy Roads provide the only road access to sheep habitat, and these are almost completely within the boundaries of the proposed preserve. Few areas within the proposed park are reasonably accessible from roads to sheep hunters. Frequencies of access modes used by sheep hunters in the category designated "park or preserve" fall intermediate to those in the park and preserve suggesting that about half of the hunting effort in this "grey" area would be in each.

Success rates of hunters of each resident class using a particular access mode were equivalent in the park (Table 55C) but not in the preserve. In the preserve resident hunters apparently had lower success than non-residents using the same transportation (Table 55F), but small sample sizes preclude statistical affirmation of this difference. Thus low success of Alaskans in the preserve can be related primarily to their heavy reliance on highway and off-road vehicles and secondarily to poor success relative to non-residents using identical access. Use of guides is not specified on sheep harvest tickets. However many residents hunting sheep in remote areas probably relied on guides accounting for higher success in the park than in the preserve. In contrast residents hunting in the more accessible regions of the preserve, particularly those using highway or off-road vehicles, probably hunted independently of guides resulting in reduced success.

Both successful and unsuccessful sheep hunts typically lasted longer in the park than in the preserve (Table 56). Successful hunters of all resident classes had shorter hunts in the park, yet unsuccessful hunts of non-local Alaskans were longer in the preserve than in the park. Horseback hunts lasted longer than other hunts both in the park and in the preserve (Table 56C).

No differences among regions delimited in the USDI proposal in average horn length were detected (Table 57). However, combining areas characterized by marked disparities in horn size into regions delineated in the USDI proposal obscures any differences that might exist between areas in trophy potential. During the study period the harvest of 40" rams was primarily either within or near the boundaries of the proposed park (Table 58). Of the 35 rams known to be harvested within park or within preserve boundaries, 28 (80%) were within the proposed park. Clearly, preclusion of hunting coincident with park designation of the upper Chitina Valley would significantly affect harvest of trophy sheep in the study area.

Geist (1977), considering energy budgets, suggested that hunting and non-consumptive use should not be focused on the same population; non-consumptive use "can lead to detrimental consequences to sheep unless the sheep are habituated to humans. Hiking and hunting don't mix" (p. 47). Geist contended that if sheep are sometimes hunted they will react to all humans as hunters, i.e. they will not habituate to non-consumptive users. Consequently in areas open to hunting which are heavily utilized by non-consumptive users, game animals may expend critical energy stores in avoidance of humans. The nature of the park/preserve boundary in many instances will overlay hunting and non-consumptive uses on the same individual sheep. As sheep are certainly the major wildlife resource of the study area and are the focus of consumptive use, we hope the eventual boundary between park and preserve would adequately separate consumptive and non-consumptive uses of this important wildlife resource.

In summary between 25 and 80% of the hunters in the study area were within the boundaries of the proposed park. Twenty-nine to 82% of the harvest occurred in this region. Non-resident, airplane-transported hunters were heavy users of areas within the proposed park. Most of the trophy sheep were taken within proposed park boundaries.

DENALI CITIZEN'S COUNCIL
P.O. Box 39
McKinley Park, Alaska 99755

February 22, 1978

Mr. Michael Harvey
Subcommittee on Public Lands and Resources
Room 3106 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Mr. Harvey:

I represented the Alaska Coalition at the McKinley portion of the recent Senate workshop in Anchorage. You may recall me as "the lady who couldn't find Amos Lakes!" There are some points which were not covered during the McKinley discussion which the Coalition feels may be important to your knowledge of the area.

Patented landholdings other than mining claims in the Kantishna were not discussed. There are two small tourist facilities. Camp Denali, on 55 acres, has been in business as a wilderness resort for 25 years. My husband and I have owned and operated it for three years. (My husband first came to the Park 19 years ago and we have made our home in the McKinley area for ten years.) North Face Lodge, on five acres, has been in existence for five years as an overnight lodging by reservation only. The main access for both of these businesses is the Park road. In addition there are three, five acre, privately owned sights, including the old Kantishna townsite. One other privately owned plot consists of twelve acres.

During the workshop I did not feel it prudent to speak to the credibility of our mining neighbors in the Kantishna; however, I feel that some of their statements should be questioned. Jim Dale stated that there are 30 groups presently mining in the area. In addition to being Kantishna residents, my husband and I have operated the McKinley Park post office for ten years where Park and Kantishna residents receive mail. To our knowledge there are less than a dozen groups mining in the Kantishna and it is safe to say that there have never been 30 groups in the area at one time since the Kantishna gold rush in 1905. Marc Patty claimed ownership to the one and only hard rock mine in the area. It has not been worked since World War II and as of last summer there were no signs that any equipment had been brought to the site as Mr. Patty alluded. He either has it well hidden or it just isn't there.

This winter there are a total of seven people over-wintering in the Kantishna. Only two of these are associated with mining.

The Alaska Coalition believes that a far rosier picture is being painted of the Kantishna mining situation than actually exists. From

personal observations, the area mainly supports "recreational" miners, few, if any, of whom derive their principal support from their claims. The majority hold down jobs elsewhere during the winter and few of the same faces have remained in the district for more than two to five years. Assumptions concerning the potential mineral development in the Kantishna are hard to justify on the basis of known facts about the area. The economic feasibility of producing ore there simply has not appeared to have proved out over the years.

In addition, the Kantishna Hills are high alpine tundra type vegetation and from any ridgetop in the area is a commanding view of the Alaska Range. The hills are used in the summertime by hikers. One must consider the scenic value of this superb landscape, which is yearly deteriorating under ribbons of muddy cat trails, when evaluating the validity of the questionable mining economics of the area.

Thank you for your interest in coming to Alaska to gather information for your consideration of Alaska's National Interest Lands.

Sincerely,

A handwritten signature in cursive script that reads "Jerryne M. Cole".

(Mrs.) Jerryne M. Cole
ALASKA COALITION/DENALI CITIZENS' COUNCIL



BERING STRAITS NATIVE CORPORATION

P.O. BOX 1008 · NOME, ALASKA 99762 · (907) 443-5252

April 24, 1978

RECEIVED
 MAY 8 1978
 The Honorable Henry M. Jackson
 United States Senate
 Committee on Energy and Natural Resources
 Washington, D.C. 20510

Dear Mr. Jackson:

Thank you for the opportunity to present some statements during your workshop of February 16, 1978 in Anchorage. We feel that your committee staff was just beginning to scratch the surface of the type of information needed to consider D-2 legislation in Alaska.

We are extremely concerned about the overall impact of D-2 legislation on our lifestyle and on our energy dependence. First, our lifestyle has and continues to be changed extremely rapidly with some drastic results. We feel that unnecessary acceleration of this change cannot be tolerated. Closure or unreasonable restriction of large tracts of Federal lands in Alaska to energy and mineral resource development will in our opinion accelerate exploration and development in lands adjacent to our villages and offshore in the Bering Sea. A two year study by the Workshop on Alternative Energy concluded that the supply of oil will fail to meet increasing demands before the year 2000 (world oil production). Some of our dependence on metallic and non-metallic minerals can be forecast in similar manner. It does not seem reasonable to foreclose options prematurely for development on D-2 lands with one hand while endangering habitat on other lands with the other hand. The Secretary of the Interior will promulgate regulations for Beaufort Sea Oil and Gas leasing which will or can influence our peoples resource of the sea primarily the Bowhead Whale. The State of Alaska has not adequately assessed the population and habits of the caribou in Alaska and these animals are visible on land. On the other hand the habitat of the sea mammals is vast enough to overshadow the expanse of Alaska and those animals are not visible.

The Honorable Henry M. Jackson

April 24, 1978

Page two

We are concerned that most of the people in the lower '48' and in Hawaii fail to realize that other U.S. citizens live and depend upon the land in our area. We estimate 20,000 resident use days on lands throughout our area, whereas 10,000 tourist days are spent by visitors primarily within a twenty mile radius of one city. The disconcerting fact is that our residents do not have the same opportunity to express their views as the tourists do.

The Alaska Native Claims Settlement Act was passed primarily as a fair and just settlement of all claims by Natives of Alaska based on aboriginal land claims. At this time implementation of the "Act" by the Department of the Interior has been extremely slow, fraught with litigation and generally not in conformity with the real economic and social needs of natives. An estimated 8 million dollars is spent by the Bureau of Land Management on easements and adjudication of Native lands whereas 50 to 60 million is spent by the Federal government on D-2 lands not yet selected.

We feel that the Department of the Interior has failed to assess the social and environmental dependence of Alaska's residents on the land as compared to other studies such as wildlife and recreation. The U.S. Fish and Wildlife, the National Park Service and the Bureau of Outdoor Recreation has expended considerable effort to assess their respective concerns. No other departmental agency has apparently spent comparative effort in assessing the needs of rural Alaskans. Current legislative language includes provision for subsistence recognition, however it is not strong enough. We are concerned about any legislation which places subsistence usage in a subordinate category to park and refuge management policies. Some people feel that there are practical alternatives and means available to replace food supplies of subsistence users without informing us what these might be. We are concerned about vague language such as:

"Management policies on the public lands in Alaska are to cause the least adverse impact possible on rural people..."

"Within constraints of sound biological management and the purpose for which each conservation system unit is established..."

"genuinely subsistence-oriented lifestyle..."



The Honorable Henry M. Jackson
 April 24, 1978
 Page three

We have approximately 6,000 residents within our boundaries in an area roughly the size of West Virginia and unemployment is currently over 50% and often nears 60% while the average income is slightly more than \$3,000.00 per year. The poverty level in the lower 48 is slightly more than \$6,000.00 per year for a family of four and that figure as a minimum doubles for our area due to transportation costs and remoteness. The difference between the average income and the \$12,000 poverty level must come from subsistence harvests, at least for nutritional sustenance. Reducing our concern to dollar values only translates it to terms that nonresidents of our area can understand and does not come near to explaining the real meaning of land to our residents. Nonresidents have sympathy to our subsistence concerns, however we cannot convey its real meaning in the time frames that exist without actual year to year on the ground tours of experience.

The reindeer industry has become absolutely essential to the people in our area. There are many misconceptions about the reindeer industry in Alaska. For instance reindeer are semi-domesticated and cannot be compared to the cattle of the lower 48 in their effect on vegetation. The Fish and Wildlife personnel fear that deer trample duck eggs extensively but they must know that ducks purposely build their nests where they will not be trampled and that the period of exposure is very short (2 to 4 weeks?). In fact very little is known about the reindeer grazing industry in Alaska except that it provides a livelihood and much needed red meat source to rural Alaskans. Any bill not recognizing the need for this industry cannot be honored.

Enclosed are two position papers on D-2 legislation as presented to the Subcommittee on General Oversight and Alaska Lands. Thank you for your attention and we may provide more detail on your advice.

Sincerely yours,

Martin L. Olson
 President

cc: Senator Gravel
 Senator Stevens
 Representative Don Young



BERING STRAITS NATIVE CORPORATION

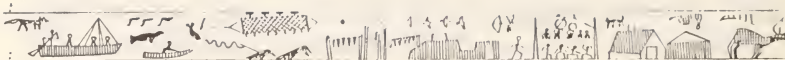
P.O. BOX 1008 · NOME, ALASKA 99762 · (907) 443-5252

TO : HONORABLE MEMBERS
HOUSE INTERIOR COMMITTEE
SUBCOMMITTEE ON GENERAL OVERSIGHT AND ALASKA LANDS
WASHINGTON, D.C.

FROM: BERING STRAITS NATIVE CORPORATION
P.O. BOX 1008
NOME, ALASKA 99762

SUBJ: TESTIMONY REGARDING SECTION 17(d) (2) OF THE ALASKA NATIVE CLAIMS
SETTLEMENT ACT "ALASKA NATIONAL INTEREST LANDS"

DATE: AUGUST, 1977



INTRODUCTION

WE WOULD LIKE TO STATE ON THE ONSET THAT BERING STRAITS NATIVE CORPORATION APPRECIATES THE OPPORTUNITY AFFORDED IT TO TESTIFY AND COMMENT BEFORE THE HOUSE SUB-COMMITTEE ON GENERAL OVERSIGHT AND ALASKA LANDS. IT IS OUR HOPE AND OUR BELIEF THAT THESE HEARINGS WILL SERVE TO FOCUS ON SOME OF THE COMMON PROBLEMS AND ISSUES REGARDING THE COMPLEX SUBJECT OF D-2, AND THE DISPOSITION OF ALASKA NATIONAL INTEREST LANDS.

IN THE INTEREST OF TIME, WE ARE ADDRESSING ONLY OUR MORE MAJOR LAND
RELATED SUBJECTS AND CONCERNS. WE ARE ALSO INCLUDING SOME SPECIFIC
TESTIMONY AND RECOMMENDATIONS ON THE THREE SEPARATE D-2 AREAS WITHIN
THE BERING STRAITS NATIVE COPORATION REGIONAL BOUNDARIES.

NATIVE LAND SELECTIONS

THE SUBJECT OF NATIONAL INTEREST LANDS STEMS FROM A SECTION IN THE ALASKA NATIVE CLAIMS SETTLEMENT ACT. IT IS THE FIRM BELIEF OF BERING STRAITS NATIVE CORPORATION THAT THE INTENT OF THIS ACT WAS TO HAVE ALL ALASKA NATIVE SELECTIONS COMPLETED BEFORE CONGRESSIONAL ACTION WERE TAKEN ON SECTION 17(d)(2). UNFORTUNATELY THIS IS NOT THE CASE, AND IT IS THE POSITION OF BERING STRAITS THAT ALL LAND PROVISIONS OF ANCSA SHOULD BE SUCCESSFULLY CONCLUDED BEFORE THE D-2 SUBJECT IS FINALIZED. RELATED TO THIS, WE FEEL THAT ANY ENACTING LEGISLATION CONCERNING NATIONAL INTEREST LANDS SHOULD DEFINITELY CONTAIN AMENDMENTS ENABLING JUST AND RAPID COMPLETION TO PROVISIONS IN THE SETTLEMENT ACT. IN ALL CASES NATIVE LAND SELECTIONS SHOULD TAKE PRECEDENCE OVER D-2 LAND CLASSIFICATIONS.

BERING STRAITS NATIVE CORPORATION FEELS THAT FEDERAL LAND MANAGERS SHOULD WORK CLOSELY WITH ADJACENT LAND MANAGERS; WHETHER IT BE PRIVATE NATIVE LAND OWNERS, STATE HELD LAND, OR UNDER OTHER FEDERAL JURISDICTION. THIS WILL ENHANCE THE LIKELIHOOD OF WELL-PLANNED, CONSISTENT, LAND MANAGEMENT POLICIES.

IN REGARD TO THE SUBJECT OF D-2 LANDS, AND THE DESIGNATION INTO CLASSIFICATION SYSTEMS: BERING STRAITS NATIVE CORPORATION FEELS THAT LAND MANAGEMENT OPTIONS SHOULD BE CONSIDERED OF PARAMONT IMPORTANCE. THIS BELIEF IS BASED ON THE FACT THAT INTELLIGENT LAND USE PLANNING IS CONTINGENT UPON ADEQUATE KNOWLEDGE ABOUT THE LANDS IN QUESTION.

BERING STRAITS NATIVE CORPORATION BELIEVES THAT AREAS THAT ULTIMATELY GO INTO THE FOUR POSSIBLE SYSTEMS SHOULD BE DESIGNATED ON THE BASIS OF THEIR



UNIQUENESS TO THE STATE OF ALASKA AND THEY SHOULD BE MINIMIZED ON THE BASIS OF THEIR UNIQUENESS. FURTHERMORE, WE FEEL THAT A DETAILED SURVEY SHOULD BE TAKEN ON ALL MINERAL AND RENEWABLE RESOURCE POTENTIALS BEFORE CLASSIFICATION PURSUANT TO SECTION 17(d) (2) OF ANCSA. SOMEWHAT RELATED TO THESE CONCEPTS IS THAT THE NUMBER OF ACRES ULTIMATELY TO GO INTO THE FOUR POSSIBLE FEDERAL SYSTEMS SHOULD NOT EXCEED THE 80 MILLION ACRES ESTABLISHED BY THE U.S. CONGRESS.

ADJACENT LAND IMPACT

BERING STRAITS NATIVE CORPORATION RECOGNIZES THAT DESIGNATION INTO THESE FEDERAL SYSTEMS WILL OFTEN AFFECT MANAGEMENT OPTIONS ON ADJACENT LAND; AND THAT THIS WILL HOLD TRUE REGARDLESS OF WHETHER THE LAND IS CLASSIFIED AS D-1 LAND UNDER THE BUREAU OF LAND MANAGEMENT OR PRIVATELY OWNED NATIVE LAND. IT IS THE RECOMMENDATION OF BSNC THAT ADJACENT LAND HOLDERS HAVE MAXIMUM INPUT INTO THE MANAGEMENT PROGRAMS OF THE VARIOUS FEDERAL AGENCIES. MAXIMUM PARTICIPATION BY NATIVES IS IN ACCORDANCE WITH SECTION 2(b) OF THE ANCSA. ADDITIONALLY, WE FEEL THAT CONGRESS SHOULD RECOGNIZE THE IMPACT ON ADJACENT LANDS REGARDING AIR AND WATER QUALITY STANDARDS AND THAT THEY STRIVE TO MINIMIZE THE NEGATIVE IMPACT ON ADJACENT LAND OWNERS AS MUCH AS POSSIBLE.

TRANSPORTATION

IT IS BERING STRAITS CONTENTION THAT ALL BILLS REGARDING THE SUBJECT OF D-2 LAND CLASSIFICATIONS SHOULD PROVIDE FOR SURFACE TRANSPORTATION ACCESS ACROSS NATIONAL INTEREST AREAS. A REVIEW OF THE MARCH 1974 LAND STATUS MAP OF ALASKA CLEARLY SHOWS THAT MANY SUCH AREAS WOULD ESSENTIALLY BECOME "LAND LOCKED" IF THIS IS NOT DONE. SUCH A SITUATION



PRECLUDES GOOD LAND USE PLANNING. IF SURFACE TRANSPORTATION IS NOT IDENTIFIED AT THIS TIME, MUCH NATIVE SELECTED LANDS WILL CONSEQUENTLY BE IMPACTED THROUGH ADDITIONAL EASEMENTS ON PRIVATE LANDS. IT IS LIKELY THAT TRANSPORTATION CAN BEST BE PROVIDED FOR THROUGH A METHOD OF UNDEFINED EASEMENTS THROUGH D-2 DESIGNATIONS. IN THIS MANNER FUTURE TRANSPORTATION CORRIDORS CAN THEN BE DESIGNATED. ADDITIONALLY, THESE CORRIDORS COULD BE CONSIDERED AS LIMITED ACCESS THROUGH THE D-2 LAND WITH THE PURPOSE OF NOT CREATING ACCESS INTO THE D-2 AREAS. OUR REASON FOR ADDRESSING THIS TOPIC IS THAT THE NATIONAL ENVIRONMENTAL POLICY ACT DOES NOT PERMIT FOR SURFACE TRANSPORTATION SYSTEM THROUGH A PARK OR OTHER PRESERVE STATUS LAND UNLESS IT CAN BE SHOWN THAT NO OTHER ROUTE IS FEASIBLE OR AVAILABLE. IF NATIONAL INTEREST LANDS ARE TO BE ESTABLISHED IN ALASKA WITHOUT RECOGNITION OF TRANSPORTATION CONSIDERATIONS IT IS VERY LIKELY THAT MANY PRIVATE (i.e. NATIVE OWNED LANDS) WILL BE CONDEMNED FOR TRANSPORTATION ACCESS IN THE FUTURE.

SUBSISTENCE

THERE IS CURRENTLY NO UNIVERSELY ACCEPTABLE DEFINITION FOR THE WORD SUBSISTENCE, AND THE CONTEXT AND MEANING OF THIS WORD IS DEPENDENT UPON WHO IS USING IT. IN VIEW OF THIS IT IS EXTREMELY DIFFICULT FOR AGENCIES TO EXPLICITLY STATE THEIR OPINIONS AND POSITIONS ON THIS SUBJECT. BERING STRAITS NATIVE CORPORATION BELIEVES THAT SUBSISTENCE IS AN INDIVIDUAL INHERENT RIGHT.

WE FEEL THAT SUBSISTENCE PROTECTION SHOULD BE GUARANTEED IN ANY ENACTED D-2 LEGISLATION, AND THAT SUBSISTENCE MANAGEMENT SHOULD BE CONDUCTED AT THE LOCAL AND REGIONAL LEVELS BY THE PEOPLE UTILIZING SUBSISTENCE.

BERING STRAITS NATIVE CORPORATION BELIEVES THAT ANY D-2 SUBSISTENCE
LEGISLATION SHOULD BE CONSISTANT WITH THE SENATE HOUSE CONFERENCE
COMMITTEE REPORT ON ANCSA. THIS WAS DATED DECEMBER 14, 1971 (NO. 92-581
SECTION C) II IN PART THIS STATES; "THE CONFERENCE COMMITTEE, AFTER
CAREFUL CONSIDERATION, BELIEVES THAT ALL NATIVE INTEREST IN SUBSISTENCE
RESOURCES LAND CAN AND WILL BE PROTECTED BY THE SECRETARY THROUGH THE
EXERCISE OF HIS EXISTENCE WITHDRAWAL AUTHORITY. THE SECRETARY COULD,
FOR EXAMPLE, WITHDRAW APPROPRIATE LANDS AND CLASSIFY THEM IN A MATTER
WHICH WOULD PROTECT NATIVE SUBSISTENCE NEEDS AND REQUIREMENT BY CLOSING
APPROPRIATE LANDS TO ENTRY BY NON-RESIDENTS ON THE SUBSISTENCE RESOURCES
OF THESE LANDS ARE IN SHORT SUPPLY OR OTHERWISE THREATENED. THE CON-
FERENCE COMMITTEE EXPECTS BOTH THE SECRETARY AND THE STATE TO TAKE ANY
ACTION RIGHTS TO PROTECT THE SUBSISTENCE NEED OF ALASKA NATIVES."



D-2 AREAS WITHIN BSMC REGION

BERING STRAITS NATIVE CORPORATION HAS THREE SEPARATE AREAS OF NATIONAL INTEREST LAND WITHIN OUR REGIONAL BOUNDARIES. THESE ARE THE CHUKCHI-IMURUK AREA, THE COASTAL BERING SEA ISLANDS AREA, AND THE UNALAKLEET RIVER AREA. AT THIS TIME, WE WISH TO MAKE SEVERAL SPECIFIC COMMENTS, AND RECOMMENDATIONS REGARDING THE PROPOSED CLASSIFICATIONS OF THESE AREAS.

BERING SEA COASTAL REFUGE

THIS SYSTEM IS COMMONLY REFERRED TO AS THE PROPOSED ALASKA COASTAL NATIONAL WILDLIFE REFUGE; AND WITHIN THE BERING STRAITS REGION IT RANGES FROM THE SOUTHERN MOST EGG ISLAND, UP TO AND INCLUDING FAIRWAY ROCK IN THE NORTH. BERING STRAITS NATIVE CORPORATION IS EMPHATICALLY OPPOSED TO THIS PROPOSED SYSTEM BECAUSE IT INFRINGES TO A LARGE DEGREE ON VILLAGE AND REGIONAL LAND SELECTION RIGHTS. MORE SPECIFICALLY THIS PROPOSAL INTERFERES WITH SELECTIONS ON EGG ISLAND, BESBORO ISLAND, FAIRWAY ROCK, SQUARE ROCK, THE OFFSHORE SEA STACKS; AND APPROXIMATELY 1,500 ACRES THAT ARE SELECTED ONSHORE IN THE BLUFF AREA.

UNALAKLEET RIVER AREA

WE ARE INCLUDING FOR THE RECORD AND YOUR REVIEW A POSITION LETTER FROM UNALAKLEET NATIVE CORPORATION REGARDING THE PROPOSED "WILD AND SCENIC RIVER." BRIEFLY STATED, THE VILLAGE OF UNALAKLEET DOES NOT OPPOSE THE DESIGNATION INTO A "WILD RIVER" CLASSIFICATION AS PREPARED AND WRITTEN BY THE ALASKA PLANNING GROUP OF THE BUREAU OF RECREATION. (DES73-110) THEIR "NOLO CONTENDERE TYPE OF AN ENDORSEMENT" IS CONTINGENT ON THE CONDITIONS SET FORTH IN THE PROPOSAL, AND AS OUTLINED IN THEIR

CHUKCHI-IMURUK AREA

RELATED TO THIS WE ARE OPPOSED TO THE INSTANT WILDERNESS PROVISION THAT WOULD IMMEDIATELY PLACE ALL D-2 LANDS INTO THE "NATIONAL WILDERNESS PRESERVATION SYSTEM" WITHOUT THE USUAL STUDY AND REVIEW PROCESS. WE FEEL THIS PROVISION PRECLUDES GOOD LAND USE PLANNING.

WE WISH TO DIRECT YOUR ATTENTION TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED CHUKCHI-IMURUK NATIONAL RESERVE AS PREPARED BY THE ALASKA PLANNING GROUP. BERING STRAITS NATIVE CORPORATION'S SPECIFIC COMMENTS ARE INCLUDED ON PAGES 422 THROUGH 422, AND SERVE TO FOCUS ON SOME OF THE ERRORS, MISCONCEPTIONS, AND MISSTATEMENTS REGARDING THIS PROPOSAL.

SUMMARY

AS PREVIOUSLY STATED IN THIS TESTIMONY WE FEEL THAT ANY ENACTING LEGISLA-
TION SHOULD CONTAIN PROVISIONS FOR ACCESS THROUGH NATIONAL INTEREST LANDS.

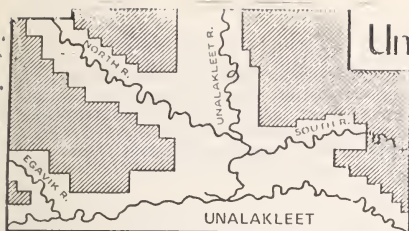


IF THIS IS NOT DONE WE FEEL THAT PRIVATELY OWNED LAND WILL BE SUBJECT TO PREMATURE PRESSURE IN REGARD TO ACCESS CONSIDERATIONS. RELATED TO THIS, BERING STRAITS BELIEVES THAT ADJACENT LAND IMPACT TO NATIONAL INTEREST LANDS SHOULD BE MINIMIZED.

IN REGARD TO THE SUBJECT OF SUBSISTENCE, BERING STRAITS NATIVE CORPORATION
FEELS THAT SUBSISTENCE PROTECTION SHOULD BE GUARANTEED IN ANY ENACTED
D-2 LEGISLATION, AND THAT SUBSISTENCE MANAGEMENT SHOULD BE CONDUCTED
AT THE LOCAL AND REGIONAL LEVELS BY THE PEOPLE UTILIZING SUBSISTENCE.

IN CONCLUSION, BERING STRAITS NATIVE CORPORATION RECOGNIZES IT IS OF GREAT IMPORTANCE TO PROTECT ALASKAS SCENIC, ENVIRONMENTAL AND CRITICAL HABITAT AREAS, BUT WE FEEL IT IS OF EQUAL IMPORTANCE TO ACHIEVE A BALANCED PROGRAM TO DEVELOP RESOURCES PURSUANT TO A NATIONAL ENERGY PROGRAM.

BERING STRAITS IS COGNIZANT OF THE FACT THAT INTELLIGENT LAND USE DECISIONS AND CLASSIFICATIONS ARE DEPENDENT UPON ADEQUATE KNOWLEDGE ABOUT THE LANDS. IN REVIEWING THE VARIOUS NATIONAL INTEREST BILLS AND PROPOSALS, WE HAVE FOUND THIS INFORMATION TO BE SORELY LACKING. IT IS OUR POSITION THAT A THOROUGH, DETAILED RESOURCE SURVEY BE TAKEN BEFORE ULTIMATE CLASSIFICATION UNDER SECTION 17(d) (2).



Unalakleet Native Corporation

P.O. BOX 100

Unalakleet

Alaska 99684

(907) 624-5411

April 11, 1977

RECEIVED
BERING STRAITS NATIVE CORPORATION

APR 13 1977

NOME, ALASKA 99762

Diane Hemmes, Vice President
Bering Straits Native Corporation
P.O. Box 1008
Nome, Alaska 99762

Dear Diane,

This letter is to confirm the phone conversation we had on April the 7th, in regards to the Unalakleet Native Corporation's position on the proposed Wild and Scenic River here in the vicinity of Unalakleet. This position, due to the shortness of time, was developed by two members of the Corporation Board, one member from the IRA Council, and one member from the City Council, who incidentally are all stockholders of the Unalakleet Native Corporation. I also sat in on the discussion, and was asked to relay the thoughts that were brought up at this meeting; this position will be discussed at our next full Board meeting for ratification.

First, I would like to mention that at the end of the proposal written, and prepared, by the Alaska Planning Group, Bureau of Outdoor Recreation, Department of Interior (DES 73-110), under appendix, there was a copy of a letter "signed by Natives of the Village of Unalakleet". This letter stated emphatically that the Native Village of Unalakleet was opposed to the river being designated "Wild and Scenic", and listed in that letter were various reasons for doing so. We wish to alter the context of that letter by stating that we are not so much opposed to the designation, but wish to take the position that irregardless of what happens to the river, we wish, for the same reasons listed in the letter, that some consideration be given to those concerns listed in the letter. In fact, we are probably in the position to support the proposal because of those reasons, after having studied the proposal in depth, and realizing that much of the concerns that were listed in the letter are being taken care of, or will be considered once the river is designated as "Wild and Scenic". At the time the letter was signed, I am almost sure that there had not been much study done on the actual proposal, and the letter was hastily written and hastily signed by all of the people. I also feel that it reflects the perplexed feeling on the part of our local people that, no matter what the government proposes, its got to be something bad for us. This type of an experience was prevalent at the time, and really hasn't changed much, but our awareness has changed some, and there is more analysis put into a position prior to coming to any specific conclusion.

Some of the greatest concerns for the land situation around Unalakleet are listed in that letter. To restate them from that letter, they are that "the Unalakleet River is being used for subsistence fishing, trapping, hunting, and berry picking...". "As many as 550 Native residence (residents) use this river for subsistence and have valid claims".

.Diane Monnes, Vice President
 Page two
 April 11, 1977

As long as the proposal does not infringe upon the right for our residents to continue to use that area for subsistence purposes, there is no reason for our opposition to the proposal. We put much trust in the proposal stating that (page 14) "The master management plan will specifically be developed in cooperation with the people of Unalakleet in order to minimize any possible adverse impact of the proposed action on their subsistence use, livelihood, or cultural use of the Wild River area". And that (page 15) "the number of people visiting the area will be limited and distributed,..."

Further reasons for our position of not opposing the proposal is that throughout the proposal, there are comments stating that (page 18) "Fishing, hunting, and trapping will continue within the Unalakleet Wild River area under applicable Federal and State regulations". Also, on (page 69), it states in regards to environmental impact of the proposed action, that "5. Native subsistence use of the resources will continue at about the same levels as at present". We are somewhat fearful of the competition of sports hunting and fishing versus our subsistence efforts, but on the other hand, we are somewhat fearful of what could happen if there is no protection of subsistence efforts at all, such as might be if the lands continue under general D-2 status, or in one extreme example, if the State selecting those lands under the Statehood Act, and opening up that land for home-steading, or commercial development. In the latter case, we feel it is the lesser of two evils if the river were designated "Wild and Scenic".

Something closely related to the above was pointed out by one of our stockholders, which stated on page 67 that, "The road is not expected to intrude into the proposed Wild River corridor so no change in the river's proposed "Wild" classification to "Scenic" or "Recreational" is anticipated and the visitor will continue to be able to have a Wild River experience". We flatly oppose any designation that would change the classification of the land to "Scenic or Recreational". This we feel would definitely affect the present status of the lands and affect the spawning grounds of our salmon and other fish, and the ability for wild game to be sustained in that area. We strongly feel that the portion on "IMPACT ON FISH AND WILDLIFE", on Page 84 and 85, should be emphasized, and especially on the last paragraph which states, "On the other hand, because the proposal will be serving important habitat associated with the Wild River designation, the impact on fish and wildlife is considered very significant".

Because there are a number of native allotments (20) in that area, we would like to see some guarantee that the rights of those private land owners not be infringed upon because of the designation. We are somewhat skeptical of the limitations that might be instigated especially on their ability to go to and from their own lands. At the time of management development, we would wish for this to be considered very carefully with input from those land owners along with the community as a whole.

This brings to mind the third paragraph of this letter, which we feel is of the utmost importance, should the river be designated as a "Wild River". We would definitely want to see local input when the Master management plan is developed. We would like to see input from both the Unalakleet Native Corporation, and also from the IRA Council of Unalakleet. These organizations represent the whole native community, with the IRA Council being ongoing, and the Corporation's status being unwieldy after 1992, as far as it's complete Native status. We feel that there should always be some local input into the management development and the continuous management of that river.

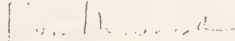
Diane Hennes
 Page three
 April 11, 1977

As we sit and review the proposal, we can't help but feel that the primary purposes for the plan fall quite in line with our wishes of preserving that area in its present wild status, and the fact that it will be a means of trying to protect wild game habitat, and the fish spawning areas. It would also permit continued subsistence activities by local residents, and when it comes to developing the master management plan, there would be local Native input into its objectives. It appears that there would be strict controls developed to preserve the wild qualities of that river, without infringing too much on the present subsistence activity. It was well stated in the letter signed by local Natives when they said that "This river is very well preserved and taken care of". If there is anyone that can preserve the land and still use it, we have probably more experience in the actual preservation than anyone living, irregardless of all of the fancy statistics, forecasts, and formulas available today.

One adverse effect on our lands, which at this point in time is not predictable, is in regards to its exposure to increased usage in the future, once it becomes designated as "Wild River". We hope that there will be as strict as possible control on outside users, and a control by tourists in general.

These then are some of the thoughts brought forth in our session reviewing the proposal as written by the BOR. Again, we don't necessarily oppose the plan for the river, and would only support it if the foregoing concerns were adhered to as the designation develops. Although, we feel skeptical about reflecting the feeling that we endorse the plan, we feel that the content of the proposal at least warrant a "nolo contende" type of an endorsement, where if the provisions set forth in the proposal are followed to the "T", then we don't have anything against it. Should there be any deviation, or slight of the hand tactics by the federal government, we would do everything within our local power to oppose actions that would go against the foregoing concerns on our part. We have lived here, are living here now, and will be living here for a long, long time, and we want to make sure that we have a say in what happens to that land, because what happens at the head of our waters, will definitely have an affect on what goes on in our community. To the end of protecting our style of living, we are willing to work with anyone with good intentions. Nothing else can be guaranteed otherwise.

Sincerely,



Tim Towarak, for the
 Unalakleet Native Corporation
 Board of Directors Lands Committee

TI/ak

CC: Unalakleet Native Corporation Board; Weaver Ivanoff, IRA President;
 Paul Ivanoff II, Mayor, City of Unalakleet

Sitnasuak Native Corporation

August 19, 1977

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The Honorable John F. Seiberling, Chairman
General Oversight and Alaska Lands Committee
Suite 1324 Longworth
House Office Building
Washington, D.C. 20515

Dear Mr. Seiberling:

This is the position of the Sitnasuak Native corporation on D-2 Lands and problems created by lack of interim conveyance to Native Corporations. We represent stockholders originally enrolled to Nome and incorporated under the Alaska Native Claims Settlement Act.

D-2 LEGISLATION

Research Data and Information

The size and nature of Alaska demand that the best information and data available be absorbed in preparation for decision making. The commissioners and staff of the Joint Federal State Land Use Planning Commission are funded by Congress (PL 92.203) to

"undertake a process of land-use planning, including the identification of and the making of recommendations concerning areas planned and best suited for permanent reservation in Federal ownership as parks, game refuges, and other public uses, areas of Federal and State lands to be made available for disposal, and uses to be made of lands remaining in Federal and State ownership."

This commission expended considerable effort through hearings, research, meetings, discussion, and studies in carrying out its duties related to the "Claims Act" but has apparently concentrated on Section 17 (D) 2. It is very important to us that any legislation on D-2 lands involve the complete studies, research and recommendation of the Commission. The State of Alaska and its congressmen also have first hand knowledge of the situation in Alaska and their positions and statements should be considered seriously. Generally, as taxpayers we would be glad to see congress utilize the data,

information and recommendations made available through their own appropriations.

Regional Setting

We would like to comment generally on the impact of D-2 legislation in our area. We are speaking of 16,140,000 acres or 26,000 square miles of the Norton Sound Area of the Northwest Region (Seward Peninsula) inhabited by 5,572 people according to the 1970 census. It would seem that 250 million Americans have more to say about a portion of this 26,000 square miles and this is certainly a popular notion. Our statistics show this is not necessarily true. If approximately 10,000 tourists spend an day in the area this is 10,000 tourist days. (We might add that most tourists only see Nome and its outskirts from the ground or less than 1% of the Seward Peninsula area.) We have more than 5,572 residents year around or 20,337 resident days. Perhaps we should have twice as much to say on these lands. We would also like to point out the fact that Washington, D.C. officials and congressmen view Alaska in its summer setting. Since Spring and Fall are almost nonexistent in our area and we have nine months of winter the common view by visitors is distorted drastically. In this regard we would ask proponents of HR 39 to hike within their proposed designations in November or March.

Subsistence

Most of the residents of the Seward Peninsula like most other rural Alaskans continue and will continue to rely upon subsistence activity for survival. This means survival both on a daily basis and of a culture. In our opinion HR 39 would arbitrarily and capriciously close one third of Alaska to this activity. This is effectively accomplished by the creation of "instant" wilderness status given all lands segregated by this bill. In this day and age, mechanized travel is an integral part of subsistence activity and it is our understanding that motor vehicles are not allowed in wilderness areas. We would like to point out that this dependency on mechanized travel is largely caused by cultural interference which has stabilized a once nomadic people. We ask you as our leaders to deliberate upon our contention that any action taken to close access by mechanized means also closes subsistence hunting and fishing activity. We cannot over emphasize the importance of the subsistence way of life to the majority of residents in rural Alaska. We suggest the best possible

evaluation of this by congress prior to designating vast areas of wilderness closed (essentially) to subsistence hunting and fishing. We make no pretense of defining subsistence as this would require much more time than we have available. We therefore wonder what the qualifications of subsistence users would be under HR 39. Each word of the following needs also to be defined: "People who exercise customary, consistent, and traditional use of subsistence resources for ...". Subsistence hunting, fishing, gathering of berries and firewood to supplement inadequate incomes is very important in rural Alaska due to the extremely high cost of living. We submit that a subsistence user may range anywhere from a hermit trapper to an "urban" dweller supplementing his income by say 10% of his food budget by subsistence means. This 10% is extremely important for it is primarily protein, so necessary in cold regions. Congress should ask: what is the effect of their proposed bill on subsistence activity rather than asking what the effect of subsistence uses have on their designated lands. Many people plead with us to retain our culture and language while most "environmentalists" ask congress to preserve the wilderness for eternity. We feel that it makes as much sense to withdraw large tracts primarily for subsistence use as it does to withdraw large tracts for scenic beauty. Certainly there is a mechanism for retaining both values as much as possible instead of retaining one at the cost of the other. This must be possible as subsistence hunting and fishing has not historically damaged the land.

State vs. Federal Regulation of Resources

A mechanism mentioned above which would allow both subsistence activity and retention of scenic beauty requires regulation of fish and game. We are being asked in this regard if we prefer Federal to State regulation. It is much easier to reach our delegates in Juneau or within the state than it is to reach our congressmen and Interior officials in Washington, D.C.

In our area the Federal government has opened the duck hunting season when most of the ducks are gone. The Federal agencies have contemplated closing bowhead whale hunting to natives when most of these whales are actually taken by foreign countries. The Federal government has agreed to open the 200 mile limit to foreign fleets if fishing is not done locally. Therefore, we must support local or state regulation of fish and game. This decision is further supported

by the previous and current land management practices of the Department of the Interior which will be discussed later on.

The Alaska Native Claims Settlement Act

We are informed that a common misconception in the lower 48 is that PL 92-203 has provided for all the needs of the Alaskan Native. In reality this Act has settled a land dispute and provided some money for organization and supposed survival as corporations and tenure of lands. If congress studies the standing of the individual "Native" they will find that he is dependent as ever on subsistence activity and benefits made available by the Federal Government through such means as discussed in section 2 C of the Alaska Native Claims Settlement Act. The land conveyances of the "Act" show much promise in retaining cultural unity however they do not begin to meet the subsistence needs.

Reindeer Grazing

We support the statement of the Reindeer Herders Association; a copy of which is attached (August 5, 1977). This industry is as important to us as the cattle industry is to Americans, and once again the extremely high cost of living in rural Alaska is a factor. Any Congressional Act which would reduce the daily caloric consumption of rural Alaskans in exchange for the luxury of tourists is unthinkable. Congressional intent should be to foster this industry to benefit local residents as was the intent of the statesmen who introduced the reindeer to this country. The State of Alaska's Public Forum has highlighted interest by the public in fostering utilization of renewable resources to become more self sufficient. We regard the reindeer a renewable resource vital to this area. We are alarmed by phrases in the Department of the Interior draft Environmental Statements which have the notion that reindeer grazing could be prohibited in withdrawals if reindeer endanger the habitat of waterfowl. Reindeer must trample some duck eggs but it is incomprehensible that this number is any more than those eggs taken by falcons or any other individual predator. It is as logical to close an area to "duck-hawks" if it can be shown that they endanger the habitat of waterfowl. Reindeer grazing and herding should be allowed without any doubts therefore HR 39 in its present form is objectionable as proper herding techniques require access by mechanized means.

Transportation

The apparent conception by those who have not seen rural Alaska must be visions of wheeled and tracked vehicles leaving scars across the country and damaging the delicate permafrost infested grounds. In reality, rural Alaska is notable for its decided lack of roads and highways. Rural Alaskans are dependent on small watercraft and snowmachines for travel. We would like to stress the fact that a boat and motor is a primary mode of transportation to subsistence hunters and fishermen rather than a luxury and pleasurecraft. HR 39 might allow subsistence activity but would prohibit the mode of travel along rivers, and a brief study of Alaskan village sites will show that rivers are of paramount importance to survival. For instance, we cannot envision a family traveling 15 miles towards a salmonberry patch then walking 6 miles up the river to gather berries then walking 6 miles back with several hundred pounds of berries in case a moose is disturbed during the closed hunting season. The same 6 miles might also represent packing 2,000 pounds of moose meat or a ton of fish. (At this time we maintain that the taking of fish and game is harvesting a plentiful resource similar to the harvest of wheat in Kansas since the land originally provides the resource.) Congress should see if motor boat travel can co-exist with their purpose of withdrawals. We say they can since the fish and game are still there to be harvested and we have reason to be concerned that we can continue to subsist as we are accustomed.

In our country travel by boat ceases with the freeze up of rivers in fall and does not reoccur till spring. The advent of the snowmachine has provided us with another primary mode of travel for subsistence purposes; a mode that is purely recreational for most other Americans. Village residents have only two realistic means of travel in winter and they are by aircraft and by snowmachine. (Dog teams are too consumptive of fish and game and too time consuming to maintain.) We would also remind you that one of the primary purposes of withdrawal is our area, the waterfowl, have migrated and are not in need of a frozen habitat. The pristine environment pictured of Alaska is replaced by snow and ice for more than eight months of the year and we have "Sewards Folly" sold at 2¢ an acre. We ask congress to look very hard at the hardships that would be caused to rural Alaskans by arbitrarily closing 114 million acres to winter mechanized travel. The consequence to many individual Alaskans would be like arbitrarily closing

the highways across 1/3 of the Continental United States in the winter. The situation in winter merits some thought, for example BLM has asked us to delineate easements for snowmachine travel through our selections. In much of our country it's like designating a path across the Sahara desert. Besides, how would we control ingress and egress through these trails and maintain a realistic budget.

Transportation Corridors

Acts of Congress to limit the flow of resources do not seem logical in the light of the grave concern by Americans about a shortage of energy resources. We do not advocate reservation of easements at this time for we cannot know the course of the most practical routes now. Corridors can be purchased through eminent domain proceedings from State and private lands and Congress can consider provisions to allow passage of mineral and energy resources through their proposed withdrawals. We do not enjoy the thought of corridors and pipelines yet we are realistic as a family in Nome may plan to budget up to 300 or 400 dollars per month for electricity and heating fuel alone.

Mining

We would stress the fact that the mining industry is not understood other than by those who are involved with the industry in some manner. The growth of this community was from the mining industry and yet the many tailing piles overgrown with foliage are testimony to the fact that some mining activity can take place yet the country can reasonably return to its natural state. While our corporation cannot realistically evaluate the impact of closure of 1/3 of Alaska to mining and petroleum activity within the time frame available we ask that congress evaluate this impact. We note that most presentations by developers have a reasonable basis through experience while preservationists tend to feel that development requires the devastation of unreasonably large tracts of land.

Management

The manager of any future federal withdrawal must be carefully considered. Recent discussions with the National Park Service personnel seem to indicate that they will not change their management technique much from their mode of experience and training. We also experience the fact that the intent of Congress can be interpreted variously by regulation as in the case of the Alaska Native Claims Settlement Act. In this regard, we are wondering if section 2 B is applicable;

that is if the settlement is being accomplished rapidly, with certainty and without litigation. We suggest that an Alaskan Commission proposed in some bills would facilitate management solutions, in the same manner that the Land Use Planning Commission coordinates Federal, State and private concerns. Several publications and brochures on D-2 lands recently sent to us by the agencies indicates that the agencies view section 17 D-2 as a means to enlarge lands within their jurisdiction. Once again we recall that the approach taken by the Land Use Planning Commission as being most objective.

We are also very concerned as taxpayers with the cost of management and generally support the WHITE PAPER ON (D-2) ISSUES, a copy of which is enclosed.

Local Setting

We would like to comment specifically on the impact of D-2 legislation in our area. The boundaries of lands withdrawn under 17 D-2 by the Secretary of the Interior in 1973 include the Kuzitrin River drainage. A map depicting the area is enclosed for your convenience. This land is extremely important to our stockholders in their annual pursuit of fish and game for subsistence purposes. While Nome is somewhat urbanized, and jobs are available the extremely high cost of living necessitates supplementing income with subsistence hunting and fishing for most residents. It seems easier to move; but the Bureau of Indian Affairs tried this before. Some families were relocated to jobs in the lower 48 but most eventually returned. The most common reason being that they simply missed their homeland and way of life.

The Kuzitrin River is the most accessible source of pike to our residents. Other rivers with pike are too costly to reach. To some of our residents this is an important supplement, while most sportsmen catch only a few and there is no apparent conflict or possibility of over harvest. This river also has a tremendous annual "run" of white fish (the reason for the pike population) which is harvested by our residents in the fall. The "run" is a seemingly continuous school of fish and the annual harvest represents a minimal catch of the total. The drainage area of this river is one of the popular sources of moose harvest. Twenty years ago the moose population here was nonexistent and migration of moose into the area has provided an extremely important source of needed meat for our residents. Despite the annual harvest the pop-

ulation has continued to apparently increase. We suggest scrutiny of Alaska Department of Fish and Game reports. HR 39 would close additional areas important to subsistence fishing and hunting as depicted in the same map mentioned above.

Summary

In conclusion, HR 39, if enacted would have disastrous effects on the State of Alaska and its residents. We believe that alternatives exist which would satisfy the desires of the conservationist, developer and resident. We suggest that congress would be in grave error if they do not take the time necessary to properly hear its people and understand the situation in Alaska then plan accordingly.

The problems created by the lack of interim conveyance to Native Corporations will be sent soon under separate cover.

Thank you for this opportunity to voice our concerns.

Sincerely,

Richard Miller
President

Richard K. Atuk
Executive Director

RM/RKA/ag



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
L3025(009)

MAY - 2 1978

Mr. Mike Harvey
Chief Counsel
Committee on Energy
and Natural Resources
United States Senate
Washington, D.C.

Dear Mr. Harvey:

At the Committee workshops held in Anchorage in February, an oil industry representative questioned the National Park Service's cooperation with petroleum geologists. The specific problem was focused on Katmai National Monument, where the Superintendent reportedly did not respond adequately to the requests of geologists studying the Lower Cook Inlet petroleum province. Enclosed are several items pertinent to this issue.

1. Letter of February 12, 1976, from Exxon Company to Alaska Area Director, National Park Service.
2. Letter of April 8, 1976, to Exxon from Alaska Area Director, National Park Service.
3. Letter of March 24, 1977, from International Technology Limited to Superintendent, Katmai National Monument.
4. Letter of March 30, 1977, to International Technology from Superintendent, Katmai National Monument.
5. Special Use Permit 9150-7-0002, dated October 1977, to International Technology Limited.
6. Letter of April 11, 1977, to International Technology Limited from Superintendent, Katmai National Monument, enclosing environmental review of April 8, 1977.
7. Letter of August 22, 1977, to Amoco Productions Company from the Superintendent, Katmai National Monument, enclosing Special Use Permit CX 9150-7-0007.



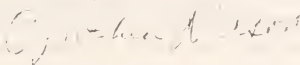
8. Letter of August 24, 1977, to Superintendent, Katmai National Monument, from Amoco.
9. Letter of October 11, 1977, to Superintendent, Katmai National Monument, from Amoco.
10. Letter of March 14, 1978, to Superintendent, Mt. McKinley National Park, from PhotoGravity Company.

For a number of years, oil companies have been making geologic studies and collecting small rock samples from Katmai National Monument in order to gather information on offshore oil structures in Lower Cook Inlet. The National Park Service has issued special use permits to cover these activities, allowing helicopter landings, provided they are restricted to beach areas. There has been only one case when an oil company wanted to land closer to a study area for convenience. Permission was denied, and the company was able to reach its study site from the beach.

In 1976 Exxon Company wanted to bring in equipment to Katmai National Monument to do core drilling for rock samples. The National Park Service agreed to this request provided the information obtained be made available to other interested parties, as well, in order to avoid the resource destruction caused by having several companies duplicate each others efforts. The company was not willing to share their findings, however, and they withdrew their request. (See letter of April 8, 1976.)

In addition to granting permits to oil companies, the National Park Service has issued permits for constructing various seismic and transponder stations in Katmai National Monument. The U.S. Department of Commerce, NOAA, has also been issued a permit to install temporary photographic aerial mapping targets on the monument shoreline in connection with offshore mapping. Recipients of various permits have included the University of Alaska Geophysical Institute, the USGS, and various private firms. In all cases, helicopter landings were permitted at the site of an installation. Information gained from these projects has given the oil industry greater knowledge of offshore structures and seismic conditions. A total of five installation permits have been issued in the past several years. Oil company permits have been issued as follows: 1977 - 2, 1976 - 5, 1975 - 8, 1974 - 6, and 1973 - 6.

Sincerely yours,



Cynthia Wilson
Special Assistant to the Secretary

Enclosures

EXXON COMPANY, U.S.A.
 POST OFFICE BOX 440 · ANCHORAGE, ALASKA 99510

RECEIVED

FEB 13 9 14 AM 1976
 February 12, 1976

NAT'L PARK SERVICE
 ALASKA STATE OFFICE
 ANCHORAGE, ALASKA

EXPLORATION DEPARTMENT

Mr. Bryan Harry
 General Superintendent
 U.S. National Park Service
 334 W. 5th Avenue, Suite 250
 Anchorage, Alaska 99501

Dear Mr. Harry:

Later this year Exxon will be requesting permission to continue the geologic field work within Katmai and Glacier Bay National Monuments begun in 1973 and continued each year thereafter under a series of Special Use and Class A Collecting Permits. Such permits bear different numbers for each year but for the year 1975 they were numbered CX9100-5-0007 and CX9140-5-0011.

The reason for this communication in advance of such request, however, is that this year due to the existence of overburden in some areas preventing adequate sampling of outcrops we would like to drill four shallow core holes approximately 10 to 50 feet in depth at the locations noted in green and pink on the attached plat depicting a portion of the monument lands.

We would propose to use a "Winkie" Model GW-15 manufactured by J.K. Smit & Sons International Ltd. of Toronto Canada. This is a light weight, compact piece of equipment which with accessories (unipress and rod puller) weighs only 165 lbs. The Winkie breaks down to permit easy hand carry transport by two men thus requiring no more transport equipment than the usual helicopter we have employed in the past. With this letter we are enclosing copies of descriptive material concerning the Winkie furnished us by the manufacturer which we believe supports a conclusion that shallow core samples of the sort we require may be taken without polluting either the land or the air or disturbing the wild life in any way.

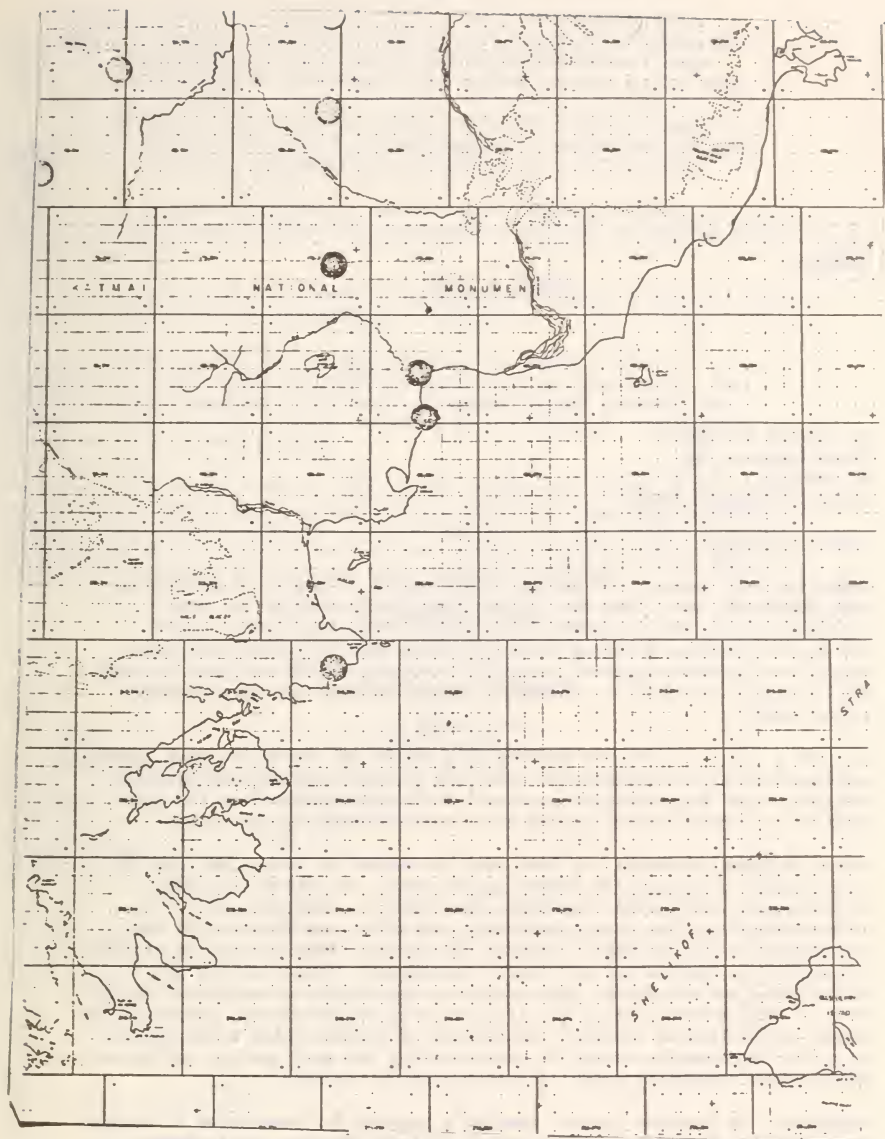
We earnestly request your consideration of this slight expansion on the field programs of the past, an expansion which we believe may be made without in any way interfering with the public use and enjoyment of the monument or the administration of the lands by the National Park Service.

If there are questions unanswered by this request please do not hesitate to advise me and I will make every possible effort to supply or obtain whatever further information may be required.

Yours very truly,

Robert K. Riddle
 Robert K. Riddle

RKR:jh



Peterson, _____
Harry _____*General*
5/29/76
*left*L30
(AAO)AD

April 8, 1976

Mr. Robert K. Riddle
Exxon Company, USA
PO Box 440
Anchorage, Alaska 99510

Dear Mr. Riddle:

Regarding your request for geologic exploration in Katmai -- many firms seek permission each year for surface geological sampling and such activities have been in effect on an annual basis for several years. Yet we have serious concerns regarding those exploration efforts which anticipate further expansion into more elaborate techniques such as core drilling even though these techniques might be suggested on a somewhat modest scale.

We have a great concern for studies by a number of companies, each repeating earlier studies and essentially acquiring similar data through separate efforts. This compounds the potential for physical damage to the land when their efforts evolve beyond minor surface sampling activities.

Katmai National Monument, by law, must be managed in such a way that it will remain unimpaired for future generations. Motorized equipment (helicopters, all terrain vehicles, core drilling equipment, etc.) is prohibited except for those management activities consistent with the objectives in the Monument. Because the National Park Service is vitally interested in surface and sub-surface geological formations for our educational and management applications we can authorize motorized equipment if such activity is to acquire knowledge for management purposes. We might well willingly consider the concept of studies which would result in public information useful to understanding the park geology and satisfying other companies' needs to pursue similar studies.

Therefore, in response to your company's request for permission to conduct core drilling activities within Katmai National Monument this summer, the project you have generally defined would likely be acceptable within the frame work of the conditions below. The Exxon Company should arrange for:

1. Preparation of a detailed study plan to be circulated to commercial and public organizations which have a similar interest and to obtain concurrences that resulting information would meet their needs and obviate future requirements for similar studies in the area.
2. Timely and prompt public release of study results to meet the above commitments and to enable the National Park Service and academic institutions to better interpret the Monument's geologic history.
3. Investigative techniques and practices which will leave no lasting surface impact on the land, vegetation, wildlife or aquatic values of the Monument.
4. Timing of the field work to be such that visitor experience and use of the area will not be impaired.
5. Preparation of either an environmental impact statement or assessment as defined under the National Environment Policy Act. Preparation of this document would be accomplished through a consultant competent in this special field, selected by the National Park Service, and funded by your organization.

We recognize that the press of time or the competitive nature of decisions you may make based on data recovered may prohibit you from consolidating efforts with others or disclosing study results. In that case, we anticipate a continuation of past surface studies conducted under similar conditions for which approval has been previously granted.

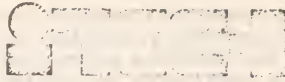
Sincerely yours,

(SGD) G. BRYAN HARRY

G. Bryan Harry
Area Director

cc:
Supt EATH

Peterson: am



INTERNATIONAL TECHNOLOGY LIMITED

723 West 6th Avenue, Anchorage, Alaska 99501
telephone: (907) 274-7700

March 24, 1977

Gil Blinn
U.S. Park Service
Katmai National Monument
Box 7
King Salmon, Alaska 99613

Dear Mr. Blinn:

Per our conversation of March 22, this letter is our formal request for a special use permit in the Katmai National Monument. The attached map shows the two locations that we want to use. We need access to the sites to set up transponders for navigational use with a seismic operation in the Lower Cook Inlet.

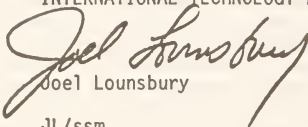
Helicopters will be used for transportation of men and equipment. We will need access only to set up and remove the transponders with one possible intermediate visit to check the energy supply.

We would use the sites from approximately April 15 to September 15, 1977.

Your early consideration of our request will be greatly appreciated. If you need any additional information please call me at 274-7400.

Sincerely,

INTERNATIONAL TECHNOLOGY LIMITED


Joel Lounsbury

JL/ssm

Enclosure



March 30, 1977

Joel Lounsbury
International Technology Limited
723 West 6th Avenue
Anchorage, Alaska 99501

Dear Mr. Lounsbury:

Enclosed is the Special Use Permit you requested to install transponders and conduct seismic monitoring studies within Katmai National Monument. Please sign all copies of the permit, having each copy signed by two witnesses. The forms should then be returned to me, along with a \$50.00 check payable to the National Park Service. I will then approve the permit and return a copy to you.

We wish you every success with your operation this summer. If I can be of any information or assistance, please contact me at your convenience.

Sincerely yours,

Gilbert E. Blinn
Superintendent

Joel Lounsbury
International Technology Limited
723 West 6th Avenue
Anchorage, Alaska 99501

Dear Mr. Lounsbury:

Attached is the approved Special Use Permit for the transponder and seismic stations you wish to construct in the Cape Douglas area this summer.

We hope that you have a successful field season.

Sincerely yours,

Gilbert E. Blinn
Superintendent

Environmental Review

A Special Use Permit has been issued to International Technology Limited of Anchorage, Alaska to construct and operate two temporary transponder sites along the coastline of Katmai National Monument to support seismic studies in lower Cook Inlet. These will be located near the South Douglas Bench Mark, and on a ridge 5 miles NNW of Cape Douglas. These facilities will consist of small seismic monitoring stations with transponders, powered by thermal generators. The stations are temporary and will be removed by October 31, 1977. They are located away from areas of known wildlife concentrations, archeological sites, significant vegetation zones or visitor use.

Following an examination of the above, it has been determined that environmental impacts of this proposal will be negligible.

Gilbert E. Blinn
Gilbert E. Blinn
Superintendent

4/8/77
Date

~~Katmai National Monument~~

International Technology Limited, Anchorage, Alaska is hereby authorized during the period from April 15, 1977, through October 31, 1977, to use the following described land in the above named area:

[illegible]

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to elow'ou uol yeip'ou'yeip' yeip'q'
to elow'ou uol yeip'ou'yeip' yeip'q'

subject to the conditions on the reverse hereof and attached pages and (b) the payment to the Government of the United States of the sum of one million four hundred and twenty thousand (\$1,420,000) Dollars (see page 10 of the contract) in advance and in 12 monthly installments; etc. (The following is a copy of the contract.)

payment to be made to the Superintendent by Express or Postal Money Order, certified Check, or Draft payable to

[illegible]

3. The undersigned hereby accept this patent subject to the terms, covenants, obligations, and reservations, expressed or implied, therein.

TWO WITNESSES TO SIGNATURES

NAME _____
 ADDRESS _____

[illegible]

* PERMITTEE (Signature)

NAME MAISEL HIRSH
ADDRESS 1010 14th St. N.W.
CITY WASHINGTON
STATE D.C.
COUNTRY U.S.A.
DATE 10/10/54
SIGNATURE MAISEL HIRSH

ADDRESS: provisional for the cost of such removal and the restoration of
former service, but will not relieve the borrower of
liability for higher authority)

NAME	CONDITIONS OF THIS PERMIT	DATE
------	---------------------------	------

*Sign name or names as written in body of permit; for copartnership, permittees should sign as "members of firm"; for corporation, the officer authorized to execute contracts, etc., should sign, with title, the sufficiency of such signature being attested by the Secretary, with corporate seal, in lieu of witnesses.

19-03054-9

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SPECIAL USE PERMIT CONTINUATION SHEET

AREA	PERMIT NO.	PAGE NO.
Katmai National Monument	9150-7-0002	

16. Access to site locations will be by foot or helicopter only, with helicopter landings being made only at the immediate site locations and on beaches below mean high tide. Only those helicopter landings necessary for construction, operation, maintenance and removal of the stations are authorized. Fuel caches may not be stored in the Monument.
17. Facilities authorized are limited to two seismic monitoring stations and navigational transponders with necessary support equipment, including thermal generators. No ground features, vegetation or other natural features will be disturbed except as necessary for the construction, maintenance and operation of the stations. No natural features will be disturbed which are not in the immediate vicinity of the stations.
18. At the conclusion of operations, all equipment will be removed and the sites restored to their original conditions.
19. Polaroid or other photographs taken on the ground will be furnished to the Superintendent showing the sites prior to construction, at the completion of construction, and after removal of all facilities at the completion of the project.
20. Firearms will not be removed from aircraft while in the Monument.
21. Nothing in this permit shall be construed as giving preferential rights to the permittee or assuring that similar permits will be granted in the future.

August 22, 1977

Mr. Jim Saviers
AMOCO Productions Co.
Box 779
Anchorage, Alaska 99510

Dear Mr. Saviers:

Attached is Special Use Permit number CX 9150-7-0007 which you have recently requested for your operations within Katmai National Monument. Please sign all copies, have each signature witnessed, and return all copies to us along with the \$50.00 permit fee. We will then complete the permit and return your copy to you.

We hope your field operations go well. Please call on us if we can be of assistance in any way.

Sincerely,

Gilbert E. Blinn
Superintendent

This permit consists
of pages
including attachments.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SPECIAL USE PERMIT

Katahdin National Monument
(Area)

PERMIT NO. CX 9150-7-0007	EXPIRES 9/30/77
PREVIOUS PERMIT NO.	

AMOCO Production Co. of Box 779, Anchorage, Alaska 99510 is hereby authorized during the period from August 21, 1977, through September 30, 1977, to use the following-described land in the above-named area:

• *Империя или экспансия? Восток и империализм в советской мысли: очерк истории вопроса* (1989).

[illegible]

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subject to the conditions on the reverse hereof and attached
States of the sum of one hundred dollars and no
in addition. — The amount of the sum of one hundred dollars

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pages and for the payment to the Government of the United
 Dollars (\$ 50.00),

[illegible]

§. NONDISCRIMINATION.—266. THE CHURCH OF Y.

payment to be made to the Superintendent by Express or
the National Park Service Cashier.

[illegible]

10. NUMBER OF INMATES:—120 INMATES WERE ON ONE OF THE POLICE

Robert E. Blinn

2. The undersigned hereby accepts this permit subject to the covenants, obligations, and reservations, expressed or implied, therein.

[illegible]

*Sign name or names as written in body of permit; for copartnership, permittees should sign as "members of firm"; for corporation, the officer authorized to execute contracts, etc., should sign, with title, the sufficiency of such signature being attested by the Secretary, with corporate seal, in lieu of witnesses.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SPECIAL USE PERMIT CONTINUATION SHEET

AREA	PERMIT NO.	PAGE NO.
Katmai National Monument	CX 9150-7-0007	

16. Firearms are not permitted in the Monument.
17. No fossil material may be collected except for incidental paleontological remains. Sample materials may be collected only with hand tools, and power equipment is not permitted.
18. No personal collections of any specimen found in the Monument will be taken by any member of the party.
19. Refuse will not be disposed of within the Monument.
20. A report of activities and location maps of study areas will be provided to the Superintendent upon completion of the project.
21. Helicopter landings will be restricted to beach areas. Prior to undertaking this project, the permittee will advise the Superintendent of the aircraft ownership and registration number for equipment to be used within Katmai National Monument. No fuel caches will be placed inside the Monument.
22. Issuance of the permit by the National Park Service does not provide the permittee with preferential rights, nor does it assure future conduct of similar exploratory activities within Katmai National Monument.



Amoco Production Company

P. O. Box 779
Anchorage, Alaska 99510

August 24, 1977

Mr. Gilbert E. Blinn
Superintendent
Katmai National Monument
P. O. Box 7
King Salmon, Alaska 99613

Dear Mr. Blinn:

Enclosed are signed copies of Special Use Permit CX 9150-7-007
and a draft in the amount of \$50.00.

Be advised that the helicopter to be used in the field operation is
owned by Evergreen Helicopters of Alaska, Inc., an Alouett II - SA 318C
registration number N 9367.

Thank you for your prompt assistance.

Very truly yours,

A handwritten signature in dark ink, appearing to read "J. G. Saviers", with a long horizontal flourish extending to the right.

J. G. Saviers

Enclosures



Amoco Production Company

P. O. Box 779

Anchorage, Alaska 99510

October 11, 1977

Mr. Gilbert E. Blinn, Superintendent
Katmai National Monument
King Salmon, Alaska 99613

Dear Mr. Blinn:

Re: Permit No. CX 9150-7-0007

With reference to the subject permit and your Special Use Permit Condition 20, Amoco Production Company on August 28 and 29, 1977 made helicopter beach landings at locations depicted on the attached plat for purposes of our geological field investigation.

We certainly appreciate your prompt attention to our permit request when time with us was of the essence. If you require further information concerned with our activities, please advise.

Very truly yours,

J. G. Saviers

Attachment

Katmai National Monument

Date: 10/12

Initial

Route: ☒ Superintendent

☐ Secretary

☐ Park Planner

☐ At. Services Ldr

☐ Sales and Tech.

☐ Special Lectors

Disposition

File

Library

Throw

**PhotoGravity Company**

7000 Regency Square Blvd., Suite 130, Houston, Texas 77036, (713) 780-4911, Telex. 76-2059

March 14, 1978

Mr. Daniel R. Kuehn, Supt.
U.S.D.I. National Park Service
Mount McKinley National Park
P. O. Box 9
McKinley Park, Alaska 99755

Re: Gravity Survey
Western McKinley Park

Dear Mr. Kuehn:

Last summer your office was most kind in granting a permit to us for conducting a gravity survey in the western corner of McKinley Park. Incidentally, that was the most efficiently handled permit we've ever received from a governmental agency. No red tape, just go do it, be careful and that was it! We appreciate it!

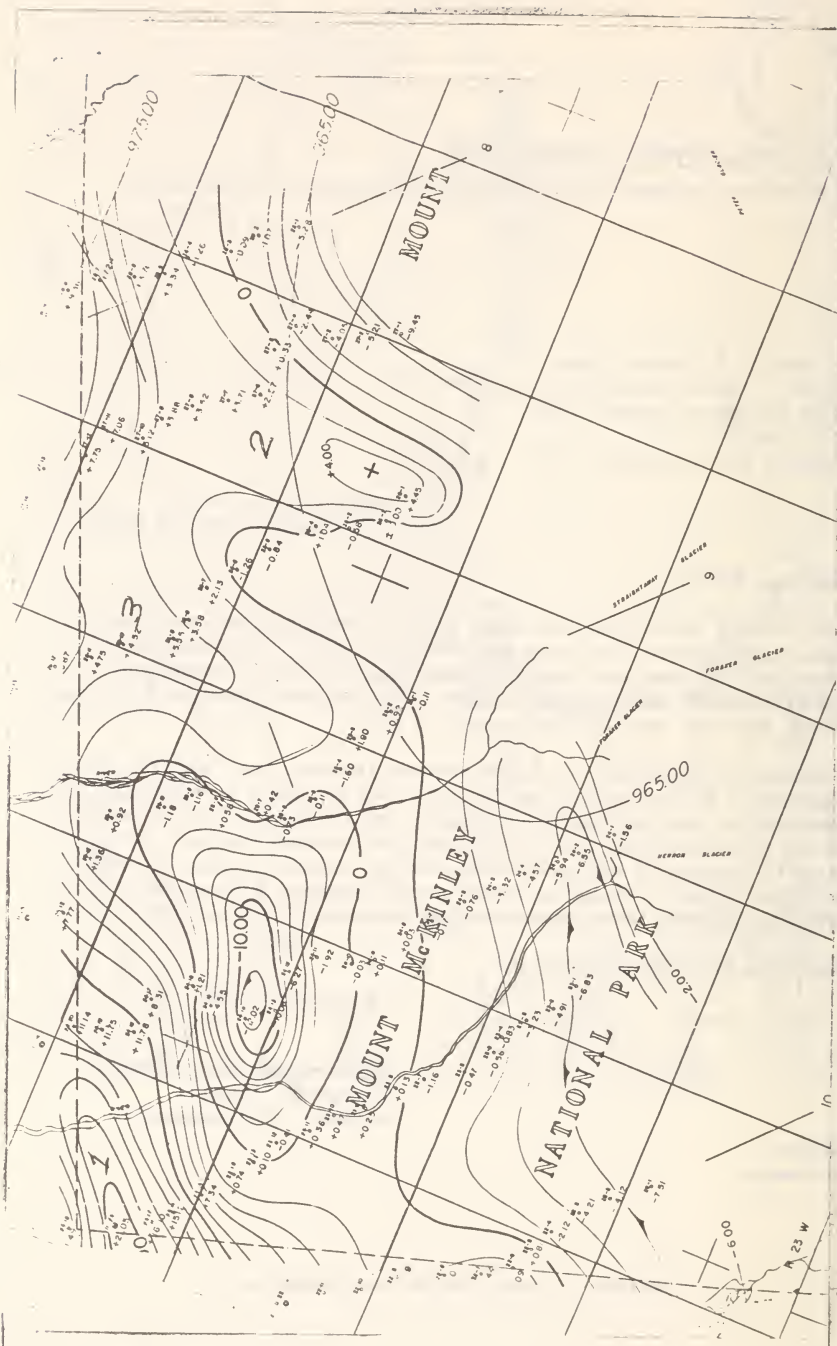
A stipulation of the permit was to provide the park with the data we collected, a map of such is enclosed. I am including an explanation sheet with it, as your group is probably not familiar with the use of gravity data in oil and gas exploration. In general, the park is not a prime target for oil and gas exploration for obvious political reasons, and from a gravity viewpoint there are no outstanding prospects. The park was included in the survey to get peripheral or trend data only.

Thank you for your cooperation.

Very truly yours,

George W. Hinds
George W. Hinds
Director of Operations

GWH:ef
Enclosures



General Crude Oil Company

HOUSTON, TEXAS 77001

March 3, 1978

Senate Energy and Resource Committee
U. S. Senate
Washington, D. C.

Attention: Mr. Steve Quarles

Re: D-2 Workshop
D-2 Anchorage, Alaska, February 13-21

Dear Senators:

We understand that the Wulik River (Subcommittee Print HR-39 Section 502 (a) (#74) Wulik, Alaska) has again been strongly recommended by environmental groups as an addition to the Wild and Scenic Rivers during the above captioned hearings. This particular river does not provide the floating and canoeing opportunities generally required for such designations and its values can be protected by existing environmental regulations. The region which includes the river contains one of the largest lead-zinc-silver-cadmium potential reserves in the United States. Drilling in 1977 intersected several zones reaching 54 feet thickness averaging 8.5% lead, 25.5% zinc, 0.25% cadmium and 5.32 ounces per ton/ounce silver. This is a reasonable indication that this zone contains a world scale major reserve of these metals. Ore reserves may readily reach hundreds of millions of tons with a monetary value of several billion dollars. Numerous other showings have been found within the claim block that covers a major mineral belt lying on both sides of the Wulik River. The discovery drilling program mentioned above lies about three miles from the Wulik River.

Expenditures in 1977 for exploration on this property alone exceeded \$2 million, and planned expenditures in 1978 amount to \$5.7 million.

The above mineral wealth would be locked up and could not be mined if the Wulik is designated a Wild and Scenic River. We urge that the Wulik be deleted from consideration as an addition to the Wild and Scenic River System and the region left open to multiple land use. Our experts would be available to assist in your deliberations at your convenience.

Sincerely,

Marc F. Wray



HOUSTON OIL & MINERALS CORPORATION

March 3, 1978

Senate Energy and Natural Resource Committee
U.S. Senate
Washington, D.C. 20510

Attention: D-2 Workshop Committee

Re: Anchorage Meeting, February 13-21

Dear Senators:

It is our understanding that the Mulik River (Subcommittee Print HR-39 Sec. 502 (a)(74) Mulik, Alaska) has again been strongly supported by environmental groups as an addition to the Wild and Scenic Rivers at your Anchorage hearings. This particular river does not provide the floating or canoeing opportunities generally required for such designations and its values can be protected by existing environmental regulations. In addition, the region traversed by this river contains one of the largest lead-zinc-silver-cadmium potential reserves in the United States. Within our large claim block held jointly with General Crude Oil and WGM Inc., drilling in 1977 intersected among other intercepts a zone 54 feet thick averaging 8.5% lead, 25.5% zinc, 0.25% cadmium and 5.32 oz/ton silver. This is a reasonable indication that this zone contains a very major reserve of these metals. Ore reserves may readily reach hundreds of millions of tons with a monetary value of several billion dollars. Numerous other showings have been found within the claim block that covers a major mineral belt lying on both sides of the Mulik River. The drill hole above lies about three miles from the Mulik River. Located claims in fact cover some fifteen miles out of the total Mulik River length of 50 miles.

Expenditures in 1977 for exploration on this property alone exceeded \$2 million.

The above mineral wealth would be locked up and could not be mined if the Mulik is designated a Wild River. We urge that the Mulik be deleted from consideration as an addition to Wild and Scenic River System and the region left open to multiple use.

Sincerely yours,

HOUSTON OIL & MINERALS CORPORATION

C. Phillip Purdy, Jr.
Vice President, Minerals Division

CPP/clm



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

APR 18 1978

Honorable Henry Jackson
Senate Committee on Energy
and Natural Resources
United States Senate
Washington, D.C. 20510

Attention: Mr. D. Michael Harvey

Dear Senator Jackson:

During the Senate workshops held in Anchorage in February a request was made that we supply information related to oil development on the Kenai National Moose Range. Enclosed please find a copy of that information.

Please let us know if you have further data needs.

Sincerely,

Walter R. McAllister
Acting Associate
Director

Enclosure

R1-57

UNITED STATES GOVERNMENT

*Memorandum*FISH AND WILDLIFE SERVICE
P. O. Box 500
Kenai, Alaska 99611TO : Bill Reffalt, Chief
ANCSA, USFWS, WDC

DATE: March 16, 1978

FROM : Asst. Refuge Manager, Kenai NMR,
Kenai, Alaska

SUBJECT: Oil & Gas Developments - Kenai NMP

In response to your earlier request regarding oil related developments on Kenai Refuge lands north of the Kenai River, we respectfully submit the following:

Seismographic lines (15-20' wide) 1500 miles

Drilled Wells

113

- | | |
|-------------------------|---------|
| 1. Wildcat wells | 13 |
| a. Abandoned | 10 |
| b. Capped gas | 2 |
| c. Tight hole (Mar' 78) | 1 |
| 2. Beaver Creek Unit | 7 |
| a. Abandoned | 1 |
| b. Crude production | 2 |
| c. Capped gas | 3 |
| d. Field production gas | 1 |
| 3. Sterling Unit | 3 |
| a. Gas production | 1 |
| b. Shut-in | 1 |
| c. Abandoned | 1 |
| 4. Swanson River Field | est. 90 |
| a. Crude production | 42-47 |
| b. Shut-in | 13-18 |
| c. Gas injection | 11 |
| d. Water injection | 2 |
| e. Mud injection | 2 |
| f. Abandoned | 10 |

The completion of a multi-million dollar exploratory well in the center of Swanson River Oil Field during December 1977 provided down hole structure information for two major oil companies bidding on off-shore leases many miles distant. This hole, nearly 17,700 feet deep, was the deepest hole drilled in Alaska at that time and is now shut-in because of excessive gas and minimum crude production. The priority for this drill was down-hole information not production.

*Save Energy and You Serve America!*

Bill Reffalt, Chief
ANCSA, USFWS, WDC

An additional expressed concern involved the late history of the Kenai caribou. Prior to 1880 the Kenai Peninsula was one of several important Stone caribou ranges in Alaska. During the 1890's a series of wildfires reduced much of the caribou habitat which later through successional hardwood stages developed into excellent moose habitat.

By 1910 caribou were seldom observed and in 1972 thirteen animals were shot near Ptarmigan Head in the Caribou Hills. This was the last authentic report of caribou on the Kenai Peninsula.

Habitat studies during the 1950's and early 1960's suggested certain habitat areas again suitable for caribou. In May 1965 and April the following year fifteen and twenty-nine caribou, respectively, were reintroduced to the Kenai. These 44 animals scattered widely throughout the western Peninsula and today their survivors form two distinct groups of about 300 to 400 animals. The largest and most important caribou herd on the Kenai Peninsula is supported in the alpine habitat region of Big Indian Creek and adjoining drainages within the proposed Kenai d-2 north addition.

I trust this information will be of value.

Robert A. Richey

FNR
2-16-78

To: Senator H. Jackson, Hearing Committee

From: Nancy R. Lethcoe, P.O. Box 701, Whittier, Ak. 99502

Nancy R. Lethcoe

Re: Economic Impact of HB 39 and Administration Proposal (Forest Service boundaries) on our business, Alaskan Wilderness Sailing Safaris; specifically the proposed Nellie Juan Wilderness Area.

I. Nature of business:

a. We offer guided week long sailing tours, including sailing lessons and complete skipper services (if desired), from Whittier north~~x~~ into Port Wells-Esther Island area and/or south into Port Nellie Juan area.

b. Season: Summer May to October. (We are expanding our business to include a winter season with cruises in the Southern portion of the proposed Nellie Juan Wilderness Study Area. Harbor Air of Seward will fly our guests out for us).

c. Number of people served since business began in 1975.

1975: 20 people (for 1 week)	140 use days
1976: 44 people (for 1 week)	308 use days
1977: 81 people (for 1 week)	567 use days
1978: projected-120-150	

d. clientele:

- 1) 90% come from the greater Anchorage area
- 2) Ages: 5 to 60
- 3) economic background: unemployed to upper middle class (cost per day has gone from \$26 in 1975 to \$31 in 1978. This is still a relatively inexpensive vacation considering other alternatives.
- 4) reasons for going
 - a) learn to sail
 - b) want to sail and hike in a wilderness area
 - c) want to get away from telephone, noise, other people
 - d) want to see Prince William Sound

person

II. Economic Impact of HB 39.

1) This bill will guarantee that the area will retain its wilderness qualities and the attractions which draw people to our business.

2) Our anchorages in Port Wells at Pigot Bay, Bettles Bay and Granite Bay, and in Esther Passage will retain their wilderness qualities. Our guests will continue to be able to beachcomb, photograph, hike, and camp ashore without encountering "No Trespassing" signs or logging and mining noise and interferences.

3) Since Alaskans already have indicated a desire to experience wilderness cruising, we would expect official classification as a wilderness to enhance our business in Alaska and to draw attention to our unique area nationally.

III. Economic Impact of Administration Proposal.

This is not as good for us as HB 39, because it excludes our major cruising anchorage areas listed above under II.2. Our guests currently express dismay at the few logged areas they encounter and the persistent droning of the equipment of the logging operation at Pakkham Pt. which follows us for hours across the water. If Port Wells were opened up to resorts, private cabins, logging and mining operations as a result of not receiving protection as a wilderness area, the impact with definitely be adverse on our business.

Brochure enclosed as supporting document.

To: Senator H. Jackson, Hearing Committee

From: Nancy R. Lethcoe, P.O. Box 701, Whittier, Ak. 99502 *James H. Lethcoe*

Re: Economic Impact of HB 39 and Administration Proposal (Forest Service boundaries) on our business, Alaskan Wilderness Sailing Safaris; specifically the proposed Nellie Juan Wilderness Area.

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LARRY McMASTER
6237 East 21st Avenue
Anchorage, Alaska 99504

February 15, 1978

Mr. Steven P. Quarles
Subcommittee on Public Lands & Resources
Dirksen Senate Office Building
Room 3106
Washington, D. C. 20510

Dear Mr. Quarles:

I am writing in regard to the disposition of d-2 lands in Alaska and and to submit this letter to you at the hearings in Anchorage.

I am writing as a concerned citizen opposed to Udall's HR 39 as it now stands after leaving the House subcommittee. I want to see the National Interest Lands of Alaska classified as multiple use.

I have compiled some 1977 statistics on Mt. McKinley National Park and Katmai and Glacier Bay National Monuments. The data is from the National Parks Headquarters in Anchorage, Alaska, and substantiates my claims that the present monuments fall short by a large margin of their usefull capacity because of their location and access, as would additional new parks. The following is a comparison of McKinley, Katmai and Glacier Bay:

	<u>Mt. McKinley</u>	<u>Katmai</u>	<u>Glacier Bay</u>
Acreage	1,939,493 acres	2,792,137 acres	2,805,075 acres
# Visitors	507,598	10,107	120,509
Back Country Backpackers ¹	22,149	1,196 ²	2,069
% of Visitors Backpacking	4.36%	3.94%	1.72%
Access	Auto Bus Train Light Aircraft Bicycle Hiking	Light & commercial Aircraft Private boat from King Salmon	Light & Commercial Aircraft Commercial boat
"Tourist Season"	May 20 to Sept 17	June 10 to Sept 10	May 27 to Sept 18

¹Camped out one or more nights

²People x nights camped out. Average nights spent out per person was 3

The above statistics underscore the low use factor the Monuments receive compared to Mt. McKinley.

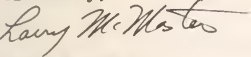
It is evident that the acreage in a Monument does not dictate the use it receives but the number and diversity of transportation systems (private and commercial) is directly related to their use.

LARRY McMASTER
6237 East 21st Avenue
Anchorage, Alaska 99504

I conclude that the additional five new parks and two new additions comprising 23.6 million acres would go unused because no commercial transportation and only one private form (light aircraft) is available. These lands would have a lower rate of visitation than Katmai. One factor not considered yet is the short "tourist season" due to weather conditions would preclude any high visitation rates.

I would hope your recommendations would limit the amount of land designated as National Parks and access to these areas be provided for in legislation. If these lands are classified as National Forests and access provided, it can serve as recreational land as well as produce the resources and truly be National Interest Lands.

Sincerely,

A handwritten signature in cursive script that reads "Larry McMaster". The signature is written in dark ink and is positioned above the typed name.

Larry McMaster

D R A F T B I L L

D E S I G N A T I N G

T H E

D E N A L I N A T I O N A L S C E N I C H I G H W A Y

P R E P A R E D B Y

A H T N A , I N C .

THE DENALI NATIONAL SCENIC HIGHWAY

A bill to designate the Denali National Scenic Highway linking the Mount McKinley and the Wrangell Mountains National Park,

SECTION I

- (a) It is hereby declared to be the policy of the United States to insure the compatible development of the National Park System in a statewide and national context, to provide recreation visitor facilities in those areas where natural conditions are suitable, and to encourage tourism and recreation by all Americans in these recreational areas.
- (b) It is recognized that as a result of the passage of legislation implementing Section 17(d)(2) of the Alaska Native Claims Settlement Act the southcentral portion of the state of Alaska now presents a unique formal park and wilderness experience bounded by Mount McKinley on the West and the Wrangell Mountains on the East with direct access to major population centers and transportation systems.
- (c) And it is further declared to be the policy of the United States to insure that these new or enlarged parks and recreational areas be enjoyed by the largest number of citizens consistent with said area's capacity to absorb same.

SECTION II

- (a) The Secretary of the Interior is hereby authorized to expend funds appropriated in subsection (e) of this section for the reconstruction and paving of the Denali Highway between Mount McKinley National Park and the Wrangell Mountains. Such appropriation shall remain available until expended.
- (b) The lands to be placed in the Denali National Scenic Highway will be one-half mile on each side of the highway provided that additional lands maybe placed in the zone where high scenic value exist.
- (c) All lands and easements heretofore and hereafter conveyed to the United States by the State of Alaska for the right-of-way for the projected Denali National Scenic Highway, including the existing Denali Highway, sites acquired or to be acquired for recreational areas in connection therewith, and a right-of-way of a width sufficient to include the highway and all bridges, ditches, cuts and fills appurtenant thereto shall be known as the Denali National Scenic Highway and shall be administered and maintained by the Secretary of the Interior through the National Park Service in conjunction with a Parkway Advisors Committee composed of state representatives, appropriate municipal government representatives and

SECTION II (cont.)

native corporation from the Copper River Valley. Insofar as practicable, the National Park Service shall coordinate and correlate with the Bureau of Land Management and with public and private owners of adjacent lands such recreational developments as it plans, constructs or permits to be constructed, which by mutual agreement should be given special treatment for recreational purposes.

- (d) In the administration of the Denali National Scenic Highway, the Secretary of the Interior may issue revocable licenses or permits for rights-of-way over, across and upon highway lands, or for the use of highway lands by the owners of lessors of adjacent lands, for such purposes and under such terms and conditions as he determines are not inconsistent with the establishment and use of the Denali National Scenic Highway.
- (e) There is hereby authorized to be appropriated the sum of \$150,000,000.00 or so much as is necessary to carry out the purposes of this act.
- (f) Notwithstanding any other provision of law, before entering into any contract for the construction, reconstruction or maintenance of the Denali National Scenic Highway, the Secretary of the Interior in

SECTION II (cont.)

recognition of their commitment of land and rights in land to this proposal shall offer a right of first refusal of the contract to contractors primarily owned by Alaska Natives and engaged in construction in that region. The right of first refusal shall be open for a period of ninety days. If no Alaska native contractor responds with a proposal that satisfies the terms and conditions established by the Secretary, the contract shall be opened to bids from other contractors. For all such contracts, work shall be performed at the wage prevailing throughout the affected area.

- (g) That Alaskan Natives have the right to the continuation of subsistence use in the Denali National Scenic Highway and buffer zone, and is further declared that all subsistence uses by Natives under this title shall have priority over other users of subsistence resources.

The Denali National Scenic Highway:

A plan for upgrading, paving and assuring compatible development of the Denali Highway between the Mount McKinley and Wrangells National Parks.

The Denali Highway is a 135 mile section of narrow gravel road, originally built to connect Mt. McKinley National Park to the Alaska state highway system. With the opening of the Parks Highway between Anchorage and Fairbanks, most traffic bypassed the Denali Highway. Today the Denali Highway is a very rough, low standard road serving primarily recreationists during the hunting season.

The highway could become an important route again with passage of legislation implementing Section 17(d)(2) of the Native Claims Settlement Act. Because of its scenic splendor, access provided by the state road network, and capacity of the environment to sustain higher levels of human activity, South-central Alaska will be the focus of increased tourism to the new national parks. Both Mt. McKinley and Wrangell-St. Elias National Parks will be accessible by road and will be the location of lodges and interpretive centers.

Wilderness values and delicate ecological conditions preclude much development of the new parks in northern and western Alaska. Therefore, the parts of McKinley and Wrangells National Parks located near the road system assume special importance in a state-wide look at recreation development.

Tourists arriving in the state at Anchorage will want to see the diverse scenery of the Southcentral region. In one tour,

they could see both McKinley and Wrangells parks and the spectacular coast of Prince William Sound. This tour runs from Anchorage to Valdez via the state ferry across the sound, up the Richardson Highway to the Wrangell Mountains, to McKinley Park on the Denali Highway, and returning to Anchorage on the Parks Highway. This route could become the most popular tourist circuit in Alaska providing appropriate access to the new parks for large numbers of people. The loop is dependent on upgrading and paving the Denali Highway.

Designating the Denali National Scenic Highway would give emphasis to the importance of the route to Alaskan tourism. It would provide a mechanism for assuring that new facilities along the highway will be compatible with its outstanding scenery. And it will give the federal government the opportunity to bring the road to a useful condition through a special appropriation. It will be a key step in making the new Alaskan parks available to people in a manner compatible with the environment. And it will give local residents the chance to benefit economically through increased tourism.

The Denali Highway right of way is owned by the State of Alaska. Implementation of the Denali National Scenic Highway would follow discussions and agreement with the State.

At present, the Denali Highway is a low priority of the Alaska Department of Highways, which is more concerned with upgrading access to outlying communities on other roads. The Department is conducting reconnaissance studies, but has no plans for substantial improvement of the highway. The department reports that the alignment and grade of the existing highway is

good, which would reduce the cost of improvements. The first 21 miles from the Richardson Highway are already paved, leaving 114 miles needing reconstruction to secondary standards and paving. According to the highway department, upgrading to secondary highway standards would cost approximately \$300,000 per mile today, with paving about \$60,000 additional. The cost of the entire project is thus about \$40 million.

FIR
2-16-78

TESTIMONY OF
HERBERT SMELCER
LAND MANAGER OF AHTNA, INC.
ANCHORAGE, ALASKA
FEBRUARY 16, 1978

Thank you for this opportunity to testify before you on the proposed D-2 legislation. My name is Herbert Smelcer and I am the Land Manager of Ahtna, Inc., the Copper River Regional Native Corporation, and also the President of Tazlina, Inc., my village corporation. Both corporations in the Ahtna Region were formed under the Alaska Native Claims Settlement Act. The Ahtna Region can really be said to be the "parks region." Most of the proposed Wrangells National Park lies within our region, and the only village adjacent to McKinley National Park is an Ahtna village. Between the regional corporation and our eight village corporations we will become owners of approximately two (2) million acres of land adjacent to the proposed McKinley additions and the Wrangells D-2 lands. The proposed D-2 legislation will have a direct effect on our selections.

We do support Alaska Federation of Natives position on D-2 lands and their position on subsistence. Concerning subsistence, we feel that the rights of a significant minority of Copper River Valley subsistence users need to be recognized and that adequate protection of the rights of these users should be enacted into law. Our way of life has changed from primarily a subsistence lifestyle to a combination of monetary and traditional lifestyles. Many of our people live on fixed income and cannot compete with the modern methods of sport hunting such as all terrain vehicles, airplanes, and boats. These people, we feel, should have the continuing

linking McKinley National Park to the proposed park in the Wrangells. We propose that the Denali Highway be paved and that a buffer zone along the route be created where limited development could occur but only while retaining the natural beauty of the highway.

In the future this scenic highway would form part of probably the main tourism route in Alaska. Visitors would arrive in Anchorage, drive to Mt. McKinley, then take the Denali Scenic Highway to the Wrangells National Park. From the Wrangells they would drive to Valdez, then travel by ferry either back to Anchorage or on to southeastern Alaska.

We propose that the Denali Scenic Highway be paved because of concern for the vast majority of visitors to the parks. The average tourist could not tolerate the bumpy condition of the present gravel road.

Ahtna feels the road should be under the management of the Park Service. The connecting link between McKinley and the Wrangells should be under the same management as the parks themselves. This would ensure that there would be consistent operations over most of the major tourism route in southcentral Alaska.

We think the time for designating the Denali Scenic Highway is now. This road is a major resource that already exists in our region. It is not a "potential" resource like many of the mineral resources of other areas. The value of the scenic highway is not based on

opportunity to obtain their subsistence needs without competition. Subsistence resources have been used by the Ahtna people for centuries. It is a part of our daily lives and we leave nothing to waste. We not only use the fur of beaver, muskrat, and linxs, but we also eat the meat. When we are lucky enough to get a moose or caribou we take practically everything. We tan the hides, and eat the head, stomach, kidneys, heart and render the fat from the intestines. We must sustain this subsistence way of life for now and in the future. The subsistence way of life is a part of our culture. Our special way of life needs to be protected. Ahtna supports A.F.N.'s proposed amendment to protect native subsistence resources. A.F.N. proposes cooperative management boards made up of six people, three nominated by the Secretary of the Interior and three from the region. We only add to their proposal a requirement that stockholders of the native corporations must be on the board.

We must have the ability to develop the resources on our native lands. Legislation that would prevent access to our selection or place undue restraints on adjacent native landowners would be economically detrimental to our corporation. We request full opportunity to participate in developing legislation that protects our development options.

Ahtna supports A.F.N.'s position and proposals concerning the land bank and implementation of the Alaska Native Claims Settlement Act.

Ahtna proposes the creation of the Denali Scenic Highway

speculation. It is a necessary, major public works project that could be completed within the next few years. Delays could result in uncontrolled commercial development along the route. Ahtna would not like to see its region blighted by an eyesore of neon signs and gas stations like the infamous Route 1 along the East Coast. We now have a chance to make the Denali Highway a scenic route like the Mt. Vernon Parkway or the Baltimore-Washington Parkway, only on a smaller scale appropriate for Alaska. A parkway between Mt. McKinley and the Wrangells based on the existing gravel road would be one of America's most beautiful national resources.

When Ahtna proposed the Denali Scenic Highway, we were criticized for making the proposal and for suggesting a preference for native contractors in construction of the highway. Because the highway runs across part of the Ahtna region and because the new park lands around McKinley and the Wrangells have a direct effect on our ability to develop the Ahtna region, we feel it is only fair that preference be given to native firms in the construction of the highway. The Federal Highway Program already allots 10 percent of construction contracts for minority firms. As for the criticism of Ahtna's proposal as a whole, Ahtna has always enjoyed close relations with Senator Jackson. We hope that these relations will continue and that the Denali Scenic Highway will receive fair consideration. We have written a draft bill for your review and submit it with this testimony.

Ahtna proposes the creation of a National Tourism Loan Fund

that would provide low interest loans for tourist facilities in Alaska. Low interest loans are needed in Alaska because of the high cost of construction and the short tourist season. These loans would be used to finance tourist facilities on native land adjoining the National Parks. Construction of esthetically pleasing buildings is far more expensive than construction of the typical "box-on-stilts" one sees throughout Alaska. Ahtna learned this when it constructed its Lodge in Glennallen. Tourist facilities built in harmony with the surrounding land are very important in the areas adjacent to the National Parks. Without low interest loans, most tourist facilities would be shoddy and ugly. The native regional corporations should have a voice in how the tourism loan fund is established.

Ahtna has not taken any position on the D-2 bills now being considered for the creation of National interest lands, however, we do have some comments on these bills. As you might know, these past six (6) years have been spent implementing the Alaska Native Claims Settlement Act, therefore leaving little time to make specific recommendations on boundaries for parks, forest lands, and wild and scenic rivers.

Concerning Mount McKinley National Park we feel that there should be only one entrance. The main purpose of the D-2 park proposals is to preserve the land in its natural state. Therefore additional access to the park will provide more opportunity for the degradation of its scenic value.

We feel that a park should be created in the Wrangells but we have not reached a decision on its boundaries. Ahtna is now completing a mineral and oil and gas exploration inventory of potential mineral lands in the Ahtna Region. When this exploration is complete by next summer we will have specific recommendations on the D-2 legislation. However, without this knowledge we feel it is premature to make a determination on what lands should be included in the National Park System. Our basic fear is due to the fact that some of our selected lands form a checkerboard pattern with the land in the proposed Wrangells National Park and Preserve. Because our selections are sometimes surrounded by proposed park lands, Ahtna feels its freedom to develop its land could be unreasonably restricted. Ahtna requests that we be given full opportunity to participate in the determination of the final boundaries of the D-2 lands in the McKinley expansion and the Wrangells whether they be parks, preserves, national forest, or wild and scenic rivers.

We do support the provision providing the opportunity for trading of regional and village lands adjacent to and in the proposed D-2 areas. We feel that certain lands may in the future become more valuable for development by the regional corporation rather than by a government agency for certain resources.

Ahtna's initial review of the original Udall-Metcalf Bill (s. 1500) is that the land involved is too excessive without taking into account the mineral potential and other uses of these lands and future municipalities. Although there are no municipalities

in the Ahtna Region today we must plan for their existence in the future.

We do point out in Sec. 708 (c) of the original Udall-Metcalf Bill that there is a different treatment with private land owners in that the Dept. of Interior is only to seek co-operative agreements with the State on adjacent D-2 lands. We feel these agreements should also be with regional and village corporations in our areas because we are directly involved with the D-2 areas in the Wrangells and McKinley additions, and will have lands in the co-operative planning and management zones.

At this time I would like to inform the committee of some of the land problems affecting our native corporations in the Ahtna Region. To date we have only received patent to approximately 150 acres in the Glennallen area during the past six (6) years. The most important problem is B.L.M.'s management of our native lands. We have had numerous problems of trespass on our lands ranging from building cabins to traplines and even operating sanitary land fills. B.L.M.'s position on our complaints is that if there is no physical damage to our resources they are reluctant to act on our behalf. One example of the type of B.L.M.'s management was the issuance of a free use permit to the State of Alaska to extract gravel from native selected land. We agreed to sell the gravel to the state but instead of selling the gravel B.L.M. issues a free use permit. We then had to spend our own money in legal action to get payment for our resources. No trespass notice was issued to the State in this action.

I must stress at this time that it is imperative that natives receive patent to our lands before any D-2 lands are finalized.

Thank you again for this opportunity to present to you some of our concerns.

*Prepared by request of Leggett Subcommittee
by U.S. Fish and Wildlife Service*

RESOURCES, USE AND MANAGEMENT OF THE
COPPER RIVER DELTA

*FTR
2-16-78*

INTRODUCTION

Major purpose of the proposed Copper River Delta National Wildlife Refuge would be protection and management of migratory waterbird habitat of international significance. The area contains the entire world population of nesting dusky Canada geese and twenty percent of the world's breeding trumpeter swans. Density of breeding ducks is among the highest in Alaska, and localized densities of bald eagles are similar to those in prime habitat of Southeastern Alaska. The Copper River Delta also supports the highest known concentration of breeding Aleutian terns in the world.

Perhaps even more important than use by breeding populations is use of the Copper River Delta as a staging and feeding area for waterfowl and other waterbirds migrating to and from arctic and subarctic breeding grounds farther north. Approximately one million waterfowl and 20 million shorebirds stage in the area during spring and as many as 2 million waterfowl and 40 to 50 million shorebirds pass through during late summer and fall. Densities exceeding 250,000 shorebirds per square mile have been observed feeding on tideflats during spring and up to 500,000 sandhill cranes have been reported on the eastern Delta during fall.

Core of the proposal area is 900,000+ acres of land and water presently in Chugach National Forest. Little merchantable timber exists in the

area and its most significant value generally is acknowledged to be wildlife habitat.

Purpose of this report is to define major wildlife values and to discuss aspects of management related to conflict with these values.

MIGRATORY BIRD RESOURCES

The Copper River Delta, Martin River/Bering River area, and Copper/Bremner Canyons provide a diversity of terrestrial and fresh water habitat found in few other areas of similar extent. They are complemented by associated estuarine and marine waters that are among the richest in Alaska. It is beyond the scope of this report to expound upon the entire spectrum of wildlife resources in the area; rather, the following material will serve to update previous information by highlighting species of particular concern to the U.S. Fish and Wildlife Service. It is suggested that the accompanying report, "Resource Synopsis of the Copper River Delta Region," (1975) be consulted for an overview of total resources, including resident and marine wildlife, and for a review of relatively recent published literature on the area.

Use By Breeding Waterbirds

Approximately 180 species of birds have been recorded on the Copper River Delta. Ninety-eight of these species are water-oriented and most are migratory. Breeding species of waterfowl include: trumpeter swan, dusky Canada goose, mallard, gadwall, pintail, green-winged teal, American wigeon, northern shoveler, canvasback, greater scaup, Barrow's goldeneye,

harlequin duck, common merganser, and red-breasted merganser. Of major concern are the once endangered trumpeter swan, the discrete population and limited habitat of the dusky Canada goose, and changes in composition of populations of ducks since the 1964 Alaskan earthquake. Very little is known about breeding populations of most other waterbirds in the area; no comprehensive surveys have been conducted and quantitative data is not available.

Trumpeter Swan. Statewide surveys of trumpeter swans in 1968 and 1975 indicate that the total population of these birds in Alaska rose in seven years from 2,847 to 4,170 and that breeding pairs increased from 1,320 to 2,102. Population of birds in the Copper Delta/Bering River region remained constant at 442 pairs, and pairs of birds in the Copper/Bremner Canyons stayed at 56. Use is concentrated primarily in the Martin River/Bering River area and is more dispersed on suitable large ponds and lakes elsewhere. It is felt that these populations have saturated their habitats and have contributed offspring partially responsible for the expansion of populations in other parts of the state. Populations of the Copper Delta area have been extremely stable and may reflect the importance of this coastal habitat in providing a buffer for the vicissitudes of climate and land use in the harsher interior of Alaska.

The land status of trumpeter swan habitat throughout Alaska is on the verge of dramatic change. It now appears that, when state and Native selections are complete, approximately 87 percent of the habitat occupied by trumpeters in 1975 will be removed from Federal ownership. Of the 13

percent of habitat remaining, about 7 percent is in the Copper Delta/Bering River region and 6 percent is on the Kenai National Moose Range and in the Copper/Bremner Canyons. This 13 percent of trumpeter habitat had 27 percent of paired birds in the population during 1975. Twenty-one percent of the total population breeds on the Chugach Forest portion of the proposed refuge; thus, of swan habitat remaining in Federal ownership, it is obvious that the lands presently managed by the Forest Service will be the most important.

Land use practices on state lands so far have not considered the swan resource. Lands are being transferred to private ownership and some trumpeter habitat is no longer used by the birds because of disturbance related to recreation cabins and other uses. We do not know how the Native lands will be used, but there is no assurance that trumpeter habitat will be protected there any better than on state lands. All of this adds up to good rationale for trumpeter swan management areas and cooperative agreements among land management agencies.

The existing Trumpeter Swan Management Area in the Martin River/Bering River area of the Chugach National Forest contains only 24 percent of breeding birds on the Gulf Coast and only 5 percent of total breeding birds in Alaska. Only 30 percent of trumpeters on the Forest occur in this management unit. Although the Fish and Wildlife Service has signed a cooperative agreement with the Forest Service regarding this area, it appears that delineation of the unit may be a token effort without

substantial biological significance. The agreement was signed simply because it was a step in the right direction; inadequacies were noted at the time of signing.

Dusky Canada Goose. In 1974, approximately 18,000 dusky Canada geese returned to the Copper River Delta from wintering grounds concentrated on National Wildlife Refuges in the Willamette Valley of Oregon. Approximately 5,000 pairs raised an estimated 18,900 young to flight stage. The projected fall flight was 36,900. This was considered by biologists to be a good production year. After two years of lower reproductive success, a combination of factors resulted in 1977 being another year of very high success with an anticipated fall flight of 38,900 and anticipated breeding stock in 1978 of over 23,000.

Critical nesting habitat for dusky Canadas extends across the western Copper River Delta from Tiedeman Slough to Castle Island Slough in a three-mile-wide strip along the coast. Concentrations of molting birds and families occur during July and early August along coastal tide flats and onshore areas from Mountain Slough to the main channel of the Copper River, south of the Copper River Highway at Miles 8 through 11 and 20 through 22, and east of the Copper River on Mirror Slough and at the mouth of Martin River Slough.

Present trends in plant succession on the Copper River Delta are toward relatively rapid development of a shrub-forest community as a result of uplift by the 1964 earthquake. The dusky Canada goose population is not under immediate threat by changing habitat conditions, but continued

monitoring of population dynamics is imperative. Effects of natural plant succession probably will be apparent within two to three decades, but development of management practices requiring manipulation of habitat would be presumptuous and inefficient until problems become more obvious. Detailed assessment and documentation of adaptive mechanisms employed by the geese should be conducted at regular intervals over the next 20 to 30 years or until habitat conditions on the Delta stabilize.

Ducks. Results of breeding pair surveys in recent years have been compared by the Alaska Department of Fish and Game with survey averages prior to 1964. ~~These comparisons appear to indicate a~~ ^{There appears to have been} a significant decline (-37 percent) in populations of breeding ducks since the 1964 earthquake. Although total dabbling duck populations have not changed significantly, diving duck populations, consisting primarily of greater scaup (-77 percent) and goldeneyes (-70 percent), appear to have declined markedly. It is important to note that previous assessments, not based on actual survey data, suggested a much greater decline. Furthermore, inconsistencies in survey methods preclude valid comparisons with past data and suggest that declines are even less than indicated above or may not be significant at all. Present estimate of total breeding ducks is somewhat under 20,000 pairs scattered throughout areas with small ponds and sloughs.

Other Species. Breeding shorebirds include: semi-palmated plovers, common snipe, spotted sandpiper, greater and lesser yellowlegs, least

sandpiper, short-billed dowitcher, and northern phalarope. No population estimates are available for these species. Other breeding species include: common and red-throated loons, horned grebe, glaucous-winged gull, mew gull, arctic tern, and Aleutian tern. Parasitic jaegers and Aleutian terns nest on a narrow band of sedge flats along the coast. Mew gulls and Arctic terns are more dispersed on coastal marshes. Glaucous-winged gulls nest as scattered pairs on marshes near the coast and in large colonies on the sandbar islands. Over 10,000 pairs nest offshore on Egg Island and Strawberry Reef Island.

Use By Staging Waterbirds

Waterfowl. The Copper River Delta is exceptionally important ^{as} ~~for~~ staging habitat ^{for} waterbirds during spring and fall migrations. Spring migration of waterfowl generally begins in mid-April and ends in late May. Peak movements are centered on a 10-day period around May 2. Because much of the Delta is covered by snow and ice until early May, many waterfowl simply fly over the Delta and on to their breeding grounds. There is use of coastal marshes and mudflats during mid-May to early June by trumpeter swans, whistling swans, Canada geese, black brant, white-fronted geese, snow geese, dabbling ducks, and some diving ducks. Most use is by individuals which eventually will breed on the Delta (trumpeter swans, dusky Canada geese, and many duck species); however, concentrations of a few thousand greater scaup, scoters, and goldeneyes occur in ice-free saltwater such as Orca Inlet and along the sand bar islands off the Copper River Delta. Concentrations of a few thousand mergansers, loons,

and gulls feed on eulachon which enter the larger sloughs on the Copper Delta.

The Delta is more heavily utilized by fall migrants. White-fronted geese first appear in early August. By mid-September several ten thousands have moved across the Delta towards their wintering grounds. White-fronts tend to concentrate on coastal marshes of the east Copper Delta and, occasionally, in the Martin River Valley. Breeding and non-breeding dusky Canada geese and trumpeter swans utilize the Delta as feeding and resting grounds until mid-October, although some swans overwinter on Eyak River. Trumpeter swans use Martin Lake and Bering Lake intensively during September and October. Several ten thousands each of Canada geese and snow geese stage in late September and early October on coastal marshes of the western Delta between Glacier Slough and Castle Island Slough or on the eastern Copper Delta and at Bering Lake and Bering River Flats. Sandhill cranes, sometimes numbering into the hundreds of thousands, and dabbling ducks also stage on the east Copper Delta in late September.

Several waves of migrant dabbling ducks utilize the Copper River Delta, especially ponds within two miles of the coast and intertidal areas to the seaward. The first movement consists mainly of American wigeon, pintail, and green-winged teal in late August. Another movement begins around September 20 with the arrival of mallards, American wigeon, pintails, northern shovelers, and other species. Smaller influxes occur in early October and continue until as late as early November.

Shorebirds. Shorebirds use the Delta intensively during spring and fall migration. Approximately 20 million shorebirds move across the Delta from the last week of April to early June with a peak during the first 10 days of May. Dunlins and western sandpipers account for the majority of individuals. Other common species include: surfbirds, turnstones, red knots, rock sandpipers, least sandpipers, and dowitchers. Mudflats of the Copper River Delta and Orca Inlet provide the only major staging grounds for these species which must accumulate energy reserves before continuing their migrations to more northerly breeding grounds.

Fall migration involves many of the same species of shorebirds as in spring, but these birds make a more leisurely flight south during July through October. More of the Copper River Delta is available during fall migration because snow is melted; therefore, use is not as concentrated along intertidal areas compared with spring use. Surveys of population composition and use of critical areas have not been conducted.

Primary foods of shorebirds on Delta mudflats include several species of bivalve mollusks and other intertidal invertebrates. Two preferred species, Mytilus edulus and Macoma balthica, have been determined by marine biologists to be extremely sensitive and reliable indicators of marine pollution. Pollution or other damage to Copper River Delta habitats could be catastrophic to the entire population of dunlins and hugely disruptive to western sandpipers, red knots and surfbirds. Many species of waterfowl also use intertidal mollusks.

LOCAL HUMAN USE OF FISH AND WILDLIFE RESOURCES

Consumptive use of fish and wildlife resources on the proposed refuge is not restricted to particular segments of the local population. Most households in Cordova supplement their diets to some degree by harvest of natural resources. Statistics regarding economic status of users and percentage of total food gained through hunting and fishing are not available; furthermore, differentiation between recreational, supplemental, and subsistence harvest would be very difficult without arbitrary and, perhaps, unfounded discrimination. Harvest of fish and game in the proposal area presently is governed by State and Federal regulations for sport hunting and commercial and sport fishing. Following is a summary of non-commercial harvest of animals by local residents. A more complete discussion of use, impacts, and policy implications of fish and game harvest in the Cordova area may be found in the accompanying report, "Subsistence Use of the Proposed Copper River Delta NWR."

Harvest Activities

The Copper River Delta and Martin River/Bering River areas comprising most of the proposed refuge are used extensively by Cordovans. Heaviest use year-around occurs on the road-connected Delta, with heavy use in fall in the Martin River area and relatively light use in the Bering River area.

Cordovans generally do not travel up the Copper River Canyon or east of

Suckling Hills for more than an infrequent hunt for sheep in the Wrangell Mountains or goats near Icy Bay. Travel is difficult and/or expenses are great. Prince William Sound, however, is used heavily--especially the eastern edge of the Sound to Port Gravina and Hawkins and Hinchinbrook Islands.

Copper Delta Area. Moose were introduced to the Delta from 1949 through 1959 and have become the major source of wild red meat in the proposal area. Most are taken near roads or with jet-boats on the flats west of the Copper River; most access to the Martin River/Bering River area is by air-boat or airplane. A few deer are shot in foothills above the western Delta, but most come from islands in Prince William Sound--all are from stock introduced in the 1920's. Mountain goats are taken for trophies and meat from alpine zones of mountains throughout the proposed refuge. Trophy hunting of black bear is common in forested foothills north of the Copper River Highway and brown/grizzly bear are taken from a variety of habitats throughout the proposal.

Waterfowl hunting is a major activity on the Copper Delta. Hunting for geese is concentrated on the flats south of the highway; most duck hunting occurs along sloughs further out on the Delta. Fly-in hunts in the Cottonwood Point area south of Martin River are becoming increasingly popular because of less competition and high concentrations of migrating geese and sandhill cranes. Hunting for other game birds occurs predominately in alpine and forested areas for willow ptarmigan, spruce grouse, and lesser numbers of rock ptarmigan.

Trapping for commercial purposes is pursued by about 10 to 15 individuals, but fewer than half of these take significant numbers of animals. Small traplines are run along the Copper River Highway, with larger ones on the Delta and in the Martin River area being serviced by snowmobiles.

At least one individual traps the Bering River by airplane. Major species trapped include marten, mink, beaver, and wolverine. Coyote, land otter, weasel, and a few wolf, lynx, and muskrat also are taken.

Commercial gillnetting for sockeye and coho salmon in the Copper River Delta supplies a significant but unknown quantity of fish for home use by many Cordova residents. Moderate numbers of chinook salmon are taken incidentally to the sockeye fishery. Commercial fishermen and other residents with boats harvest razor clams for personal consumption from sandy beaches of the Delta and Orca Inlet.

Accessible lakes and streams are used frequently for sport fishing. Dolly Varden and cutthroat are caught in most lakes north of the highway. There are whitefish in McKinley Lake, and grayling have been stocked in Pipeline Lake. Heaviest fishing takes place in Eyak River during the fall run of coho salmon. In late winter/early spring there are eulachon in the sloughs of the eastern Delta; they are fished mainly by Natives, but also by increasing numbers of Whites.

Prince William Sound. Sitka blacktail deer are common on large islands in the Sound and are hunted heavily by local residents. Early season

hunts in alpine areas account for a few of the deer taken, but most "meat hunting" occurs when heavy snow drives the deer to beaches for forage. Bears are hunted during both spring and fall, with black bear taken on the mainland and brown/grizzly bear taken on the eastern mainland as well as on Hinchinbrook and Montague Islands. Trophy hunters, about half of whom are from outside the area, greatly outnumber those taking bear for food (mainly Natives). Goats are taken on the mainland in numbers exceeding those taken in the proposal area. Harbor seal and sea lion are shot by Natives for meat and oil.

Intensity of trapping in the Sound is somewhat less than that on the proposal area. More land otter and lynx are taken, but fewer mink and no beaver are trapped in the Sound.

Marine resources from throughout Prince William Sound are a mainstay of subsistence resources utilized by Cordovans. Pink salmon taken with commercial seining gear frequently are kept for home use as are incidental catches of coho and chinook salmon. Dungeness, king and tanner crabs, shrimp, a variety of mollusks, and bottom fish such as halibut, cod, and rockfish are other important resources. Herring eggs are taken for subsistence purposes by Natives.

MANAGEMENT OF THE COPPER RIVER DELTA
FOR WILDLIFE RESOURCES

USFS and FWS Mandates, Policies and Expertise

Chugach National Forest is managed under principles of the Multiple Use-Sustained Yield Act of 1960 to produce a combination of services and products at a level of supply as high as can be sustained without harming the land's ability to produce. Mandates are specific to habitat and do not relate directly to wildlife. Forest Service biologists study and manage wildlife only indirectly through evaluation and manipulation of habitat; they rely on the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game for population research and management.

The mandate of the Fish and Wildlife Service is to protect and enhance wildlife resources. Mission of the National Wildlife Refuge System is to provide, manage and safeguard a national network of lands and waters to make available public benefits that are associated with wildlife -- particularly migratory birds and endangered species. Enhancement of habitat is part of the program where possible or appropriate. The Service has wildlife research and law enforcement branches which can be directed quickly at refuge problems when needed. Recreation and use of other resources are allowed on refuges when the well-being of wildlife resources is not compromised.

A major portion of the proposed Copper River Delta National Wildlife

Refuge is managed now under Forest Service multiple use policies.

Rupert Cutler, Assistant Secretary of the U.S. Department of Agriculture, stated to the Leggett Subcommittee on June 9, 1977, that it is essential "to retain the option of managing some lands for a combination of resource values through multiple use -- sustained yield management" and cited the Copper River Delta as one of the best examples of Forest Service cooperative management of wildlife to date. Although both comments are true, the Copper River Delta does not seem to be an appropriate area for resource management primarily by economic criteria and there are great weaknesses in effectiveness of existing cooperative management agreements.

The Forest Service presently controls an area with low forest values and almost unparalleled wildlife values. Creation of a refuge would place this land and upstream areas of high wildlife value directly under the stewardship of the only federal agency whose sole purpose is protection and management of wildlife values. Although the Copper River Delta has thus far escaped significant degradation by man, more use is occurring on the area every year and pressures are mounting for increased development of a variety of natural resources.

Present and Future Management Problems

The approach of the Forest Service to land management focuses on habitat research and manipulation. This is a necessary component of wildlife

management but often ignores wildlife biology, population dynamics, and interrelationships of species. These facets of wildlife management are regarded as the responsibility of the Fish and Wildlife Service or Alaska Department of Fish and Game, neither of which are funded specifically for adequate work on Forest Service lands. Cooperative agreements between the Chugach National Forest and wildlife agencies are augmented by annual conferences to discuss management problems, but the net result on the Copper River Delta has been lack of comprehensive wildlife programs. Surveys of populations and use of habitat have been minimal and there is little flow of migratory bird information into continental management schemes.

Following is a compilation of problems associated specifically with Forest Service management of wildlife on the Copper River Delta, including factors likely to compound these problems in the future:

1. There is no long term continuity of trumpeter swan population data as is routinely collected on the Kenai Moose Range or is kept for whistling swans at the Clarence Rhode Refuge.
2. The recently approved trumpeter swan management area was established without reference to available population data and without analysis of what such an area might achieve for swans. The boundary seems to have been drawn to accomodate already existing management agreements on other portions of the forest and to avoid

interference with potential development of coal north of Bering Lake. The welfare of swans was not the major criteria for design of the management area; thus, it may not be adequate if development occurs under the multiple use concept.

3. Existing cooperative management agreements between the Forest Service, Fish and Wildlife Service and State of Alaska are unnecessarily cumbersome and inefficient both fiscally and biologically. While at least three parties are required under present circumstances, establishment of a refuge would reduce the minimum number of cooperators to two and result in less duplication of effort and tendency toward management by committee.

4. The Forest Service does not survey and assess use of habitat by various species and groups of species as is done routinely on refuges. Rational habitat manipulation/improvement cannot be accomplished, if ever needed, without this knowledge.

5. The Forest Service presently is indicating a desire to manipulate habitat on the western Copper River Delta simply because funds are available. Large scale manipulation with outputs justified in the budgetary accounting process as acres "improved" can in no way be equated with actual habitat improvement. Such manipulation would be premature at this time and would show gross negligence in understanding of this high quality natural ecosystem. Several non-Forest Service biologists at a recent wetlands conference in Cordova

stressed the need for more research before embarking on such a program, but the fate of the "habitat improvement" money for fiscal year 1978 is unknown.

6. The continuity of dusky Canada goose production data is difficult to assess at present because it is gathered by a constantly changing mixture of University and State people and is not reported routinely as it would be in refuge reports.

7. Chugach National Forest does not have aircraft stationed in Cordova for survey and enforcement activities as is accepted practice on all Alaskan National Wildlife Refuges. Presence of FWS aircraft and pilot-biologists would improve efficiency of all aerial activities.

8. The Forest Service does not keep a constantly revised status list of all species of birds as is done routinely on refuges.

9. Commitments to multiple use--sustained yield management preclude maintenance of a Forest Service manager in the area with a primary commitment to preservation of wildlife resources. The single, subordinant wetlands biologist position in the area does not foster continuity of consistantly high quality wildlife programs. A refuge in the area would have an entire staff of biologists in addition to a manager with specific wildlife objectives.

10. A timber sale is being contemplated by the Forest Service in Redwood Bay on the coast south of Bering Lake. Completion of an environmental assessment is expected within two to three years, but it is not anticipated that logging in this area would result in habitat improvement for moose or any other species as would be required to warrant approval on a refuge.

11. Five thousand acres of land centered on Carbon Creek north of Bering Lake have been leased for strip mining of coal. Development could be initiated after determination of economic feasibility of extraction and approval of an access plan by the Forest Service. A plan for a slurry pipeline to Katalla is unlikely to be approved, but an already surveyed road from Carbon Creek down the Martin River Valley to the existing Copper River Highway is viewed by the Forest Service as being more realistic.

12. Other pressures for a road in the Martin River/Bering River area include the desire of state and Native interests for access to selections east of the Copper River and the desire of some local residents for increased recreational access and tourism. Increased economic feasibility of harvesting small pockets of merchantable timber north of Martin River is another factor contributing to consideration of development in this roadless area so vital as sensitive trumpeter swan nesting habitat and as a staging ground for migrant birds.

13. Continuing pressure for improved ferry service and completion of the Copper River Highway to connect with statewide road networks probably will result in eventual mass influx of transients into the area. This would greatly aggravate enforcement problems already apparent along existing roads: road hunting, some killing of swans, and general disturbance of wildlife. State enforcement officers already are overburdened and need additional help from the land managing agency to be more effective.

14. No restrictions exist regarding minimum altitudes or landing areas for aircraft. Use of small aircraft is common throughout the Delta and planes fly routinely at altitudes of less than 500 feet. Disturbance of nesting and staging birds is common, especially during fall with hunters surveying the eastern Delta for concentrations of waterfowl and landing near by. Recreational use of airboats associated access provided by improvement of the Copper River Highway on the east side of the river could cause similar problems; some chasing and herding of animals is already known to occur.

15. Potential for pollution of estuarine waters and intertidal areas of the Copper River Delta by oil tankers from Valdez and by OCS activities poses a major threat to the environmental integrity of the area. Forest Service interests do not appear to extend beyond mean high water, but refuge interests include all wildlife habitat and Fish and Wildlife Service expertise is available for study of impacts and preparation of mitigation plans in case of spills.

In summary, as conflicts among competing uses increase, the probability that decisions will be made detrimental to wildlife resources seems greater under management by the Forest Service than under the Fish and Wildlife Service. Furthermore, it seems logical that the Fish and Wildlife Service should control key links in the chain of habitats most crucial to the life cycles of migratory birds for which it is responsible; the Copper River Delta is certainly one of the most significant of these links. As an example of benefits to be derived by creation of a Copper River Delta National Wildlife Refuge, refuge status would provide the unique opportunity of placing lands critical to almost the entire life cycle of a discrete population of migratory bird--the dusky Canada goose--under management by the single agency entrusted with its welfare. If, indeed, wildlife habitat is considered to be the major value of the Copper River Delta, the choice of best agency to manage the area seems self-evident.

To: Honorable Henry M. Jackson, Chairman Subcommittee on Public Lands and Resources Room 3106 Dirksen Senate Office Building, Washington D. C. 20570

From: Alaska Coalition by Denali Citizens Council

Date: February 15, 1978

RE: Boundary Justifications for North and South Additions to Mt. McKinley National Park (Refer to letters on 1:250,000 map)

- A. Roosevelt Hills. Wooded hills except for highest ridges. Area includes outcrop of granite, picturesque enough to warrant inclusions into the Park. Moose retreat to upper parts of these hills in coldest weather to take advantage of temperature inversion.
- B. Muddy River Flats. Prime moose habitat. Also heavily populated by beaver, muskrat, Waterfowl nesting area.
- C. Large lake-covered flat northwest of Castle Rocks. Waterfowl habitat; prime nesting area.
- D. Castle Rocks. Scenic value important. Habitat for marten and other fur-bearing animals.
 "C" and "D" and the area between represent three different geographical and habitat zones in close proximity:
 1. lowlands and sandy-bottomed lakes
 2. small pothole lakes in irregular, slightly higher terrain
 3. Castle Rocks-hills which are forested on lower parts and are tundra on the ridgetops.
- E. Area between "C" and "D" and the northwest park boundary. Large expanse of tundra, important for its wildlife habitat and necessary for protection of the parks ecosystem. Historically, the once large caribou herds commonly came through this area.
- F. Kantishna Hills. Important for their scenic value and for more complete protection for Park's ecosystem. Dr. Adolph Lurie, a noted biologist and authority on Mt. McKinley National Park, was one of the main advocates of this northern extension. The Kantishna area has an outstanding historical story. Mining as an historic occupation, carried on with historic methods and with adequate interpretation, could add an important dimension to the experience of Park visitors. Mineral surveys are taking place on most of these areas designated under D-2 provisions, including the Kantishna mining district. Granted that some showing of minerals may be discovered in these surveys, the mere presence of a mineral deposit does not automatically determine that it can be extracted successfully or economically. It could well be in the national interest to leave these minerals where they are, an insurance that future generations will have access to them. If they really need the minerals, they will get them out.

- G. Lower Toklat River Springs. During winter open water furnishes a refuge for animals in the area. Critical grizzly habitat-concentration during fall salmon run. preserves spawning area.
- H. Eight Mile Lake and Healy Range. Lower slopes of mountains in this area vital to large mammals of the Park when they are driven there by heavy snows, concentrating particularly on the lower slopes of Mt. Healy. Three state selected townships to the south should be included in Park in a federal state land trade.
- I. Caribou calving grounds. McKinley Park herd.
- J. State and National Park boundaries should coincide.
- K. Chelatna Lake and glaciers. Full length of lake and glacier should be within Park boundary. Scenic value important.
- L. Kichatna Mountains/Cathedral Spires area. Scenic value probably surpasses value of mineralization of the area. As in the case of the Kantishna Hills, it may be in the national interest to leave these minerals intact for use by future generations if the need becomes critical.
- M. Mountain mass to Cathedral Spires. Inclusion of entire McKinley massif, as well as two outstanding peaks, Mt. Russel and Mt. Dall.
- N. Tonzona River Valley. Historically famous Dall sheep habitat. Excessive hunting in past 15 years, however, has reduced the population greatly. Amos lakes, west of Tonzona River, particularly scenic and affords beautiful views of surrounding mountains.
- O. Cottonwood Hills. Caribou fall and winter habitat.

EXCLUSIONS.

1. Lake Minchumina in its entirety because of too much privately owned land, air access, BLM summer fire fighting base, an FAA navigation and communication site, state-claimed land within a mile of the lakeshore surrounding the lake.
2. Winter trail (that goes between Fish Creek and 38-Mile Lake) because of historic and present use by motorized vehicles connecting McGrath, Tolida, and Medfra to Lake Minchumina.
3. Forkey's mine because of current prospecting operations; airstrip for use by cargo planes is connected with the mine by zigzagging road up the mountain.
4. Eastern boundary should not fall within any already privately or commercially owned land near Cantwell or Healy. Unnecessary management problems would result.

PROBLEMS:

1. Lake Minchumina- the use of the Muddy and Kantishna River systems by motorized boats as a transportation corridor from the Tanana River system. An historical access route. Consideration should be made for continued use by local residents and perhaps on a permit system (as for backcountry use) by the public.

2. Physiographic boundaries- the idea of boundaries following ridgetops is inappropriate for the McKinley area because of the prevalence of large flats interrupted by small hilly ranges. In some cases it is the whole of these hilly areas that needs protection. On the south side, terminuses of glaciers offer more natural boundaries. River systems seem more natural boundaries in some cases, but they can present management problems. Therefore, consideration of boundaries along township lines may prove the most feasible. DCC is not concerned about the details of boundary lines, provided they include areas we feel are essential.

ABSTRACT

GROSS MINERAL APPRAISAL

EXPANDED MT. MCKINLEY NATIONAL PARK

Author: Russell Chadwick, Economic Geologist

Year: 1975

Cost: \$36,114

Pages: 26, plus maps, charts, and appendices

The National Park Service contracted with consulting economic geologist Russell Chadwick of Spokane, Washington in preparing a gross mineral appraisal of Mt. McKinley and its area of environmental concern. The Chadwick report contains commercial and financial information obtained in confidence from persons outside the Government.

The report covers the following main topics:

1. Estimates the gross "open market value" of each of the separate properties investigated during the study.
2. Pinpoints and numbers the exact location of the property on U.S.G.S. quadrangle sheets.
3. Important mineral resources were classified under small producers requiring capital with market value in a lump sum with the district, class and number of properties, lode and placer, and pertinent remarks.
4. Major prospects were listed with property name, and pertinent comments relating to major capital required.
5. Special situations were listed showing the property name and description, with pertinent remarks on estimated market values..
6. Properties of minor or commercial value were listed with property number and name, description of mineral deposit, non-mineral values present, estimated market value, and history of the claim.

The properties studied ranged in character from minor showings, obviously without commercial value, to major mineral deposits, to simplify the findings because of the large number of properties. Total appraised value of legally located and maintained claim groups in area is \$2,078,000.

ABSTRACT

GROSS MINERAL APPRAISAL

OF PROPOSED CHUKCHI-IMURUK NATIONAL RESERVE ALASKA

(Unit 9, Area A)

Author: Russell H. W. Chadwick, Consulting Geologist
2407 S. Garfield Rd.
Spokane, WA 99203

Year: 1977

Cost: \$34,275

Pages: 48

An investigation was made of the Chukchi-Imuruk National Reserve proposal (now re-named Bering Land Bridge National Preserve) during 1977 to determine the estimated gross cost of acquiring mineral properties within the Morton proposal boundaries. The acquisition costs were computed on the basis of "the highest price estimated in terms of money which each ownership will bring, if exposed to sale on the open market, allowing a reasonable time to find a purchaser who buys with full knowledge of all the uses to which it is adapted and for which it is capable of being used."

Work consisted of investigating legal records, overflights of the area, and on the ground inspections of claims. Chadwick's gross mineral appraisal for all claims within the Morton proposal area is \$1,220,000.

Newman
Feb. 10, 1978

AN ABSTRACT OF GROSS
MINERAL APPRAISAL OF PROPOSED
KOBUK VALLEY NATIONAL MONUMENT AND CONTIGUOUS
AREAS OF ECOLOGIC CONCERN

Author: Russell Chadwick, Economic Geologist

Date: 1977

Cost: \$3,000

Pages: 5 and Addenda

From June 9 through July 4, 1976, Mr. Chadwick, Consulting Geologist contracted by NPS, examined in the field certain groups of mining claims in the proposed Kobuk Valley National Monument area. The purpose of the examination was to appraise the gross mineral estates to provide sufficient information to estimate the cost of acquisition.

The mineral estates were examined in the field for evidence of mining; production records were examined; owners were contacted and certificates of locations examined; and elements relating to geographic location and mining possibilities were examined.

Mr. Chadwick estimated that the gross values of the mineral estates is \$0. The formula used to estimate the gross values is, "The highest price estimate in terms of money, which each ownership will bring, if exposed for sale in the open market, allowing a reasonable time to find a purchaser who buys with full knowledge of all the uses to which it is adapted and for which it is capable of being used."

AN ABSTRACT OF
MINERAL APPRAISALS PROPOSED YUKON-CHARLEY RIVERS
UNIT 8 AREA A

Authors: Piper & Associates, Inc.
Mining Industry Consultants
Butte, Montana

Year: 1977

Cost: \$15,399

Pages: 27 in body and 78 in appendices and addenda

From August 11 through August 13, 1977, Piper & Associates, Inc., contracted by NPS, examined in the field certain groups of mining claims in the proposed Yukon-Charley National Rivers area. The purpose of the examination was to appraise the gross mineral estates to provide sufficient information to estimate the cost of acquisition.

The mineral estates were examined in the field for evidence of mining; production records were examined; owners were contacted and certificates of locations examined; and elements relating to geographic location and mining possibilities were examined.

Piper & Associates estimated that the gross values of the mineral estates is \$321,000. The formula used to estimate the gross values is, "The highest price estimate in terms of money, which each ownership will bring, if exposed for sale in the open market, allowing a reasonable time to find a purchaser who buys with full knowledge of all the uses to which it is adapted and for which it is capable of being used."

ABSTRACT

GROSS MINERAL APPRAISAL

GATES OF THE ARCTIC WILDERNESS NATIONAL PARK

Author: Russell H.W. Chadwick

Year: 1976

Cost: \$29,000

A Gross Mineral Appraisal of the proposed Gates of the Arctic National Park, made under contract with the National Park Service by Consulting Geologist Russell H.W. Chadwick of Spokane, Washington, estimates total costs of acquiring minerals rights in the park at \$555,000.

This appraisal included 727 claims on d-1 withdrawn lands in the proposal in the Kogoluktuk, Shungnak and Ambler drainages. It did not include 711 claims on State-selected land included in the park proposal, and 51 claims in the upper Noatak Basin transferred from the proposed Noatak National Ecological Preserve to the Gates of the Arctic Wilderness National Park.

ABSTRACT

GROSS MINERAL APPRAISAL

LAKE CLARK NATIONAL PARK/PRESERVE

Author: Russell Chadwick, Economic Geologist

Year: 1975

Cost: \$11,108

Pages: 24, plus maps, charts, and appendices

The National Park Service contracted with consulting economic geologist Russell Chadwick of Spokane, Washington in preparing a gross mineral appraisal of Lake Clark and its area of environmental concern. The Chadwick report contains commercial and financial information obtained in confidence from persons outside the Government.

The report covers the following main topics:

1. Estimates the gross "open market value" of each of the separate properties investigated during the study.
2. Pinpoints and numbers the exact location of the property on U.S.G.S. quadrangle sheets.
3. The mineral resources were divided into "major prospects" (numbering 3) with a description of location, property name, type, legal references, current ownership and description and possible costs of deposits.
4. Properties of "minor prospect" were merely listed with property number, description of mineral deposit (if any) and values present (if any).

Total appraised value of legally located and maintained claim groups in area is \$600,000.

AN ABSTRACT OF
MINERAL INTERESTS, PROPOSED
KATMAI NATIONAL PARK

Author: Russell Chadwick, Economic Geologist

Year: 1975

Cost: \$2,778

Pages: 9, plus maps, carts, and appendices

The National Park Service contracted with consulting economic geologist Russell Chadwick of Spokane, Washington in preparing a gross mineral appraisal of Katmai and its area of environmental concern. The Chadwick report contains commercial and financial information obtained in confidence from persons outside the Government.

The report covers the following main topics:

1. Estimates the gross "open market value" of each of the separate properties investigated during the study.
2. Pinpoints and numbers the exact locations of the property on U.S.G.S. quadrangle sheets.
3. Properties of "minor prospect" were listed with property number, description of mineral deposit (if any) and values present (if any).

Total appraised value of legally located and maintained claim groups in area is \$50,000.

ABSTRACT

GROSS MINERAL APPRAISAL

HARDING ICEFIELDS-KENAI FJORDS NATIONAL MONUMENT. ALASKA

Author: George Moerlein

Year: 1976

Cost: \$10,000

Pages:

Area extent - Mainly historic mining area of Nuka Bay on southeast coast of Kenai Peninsula.

Funding - National Park Service.

Background - Report researched by Anchorage Consulting Exploration Geologist, Mr. George Moerlein to determine gross mineral values for all known claims and a history of current ownership in Nuka Bay area.

Product - As above listed report.

Abstract - Prospecting in the Nuka Bay region was conducted in 1904-1905, but the first small-scale mining did not take place until after 1924. It continued sporadically until 1940.

Richter (U.S.G.S.) has estimated total production from the five mining properties as about 6,600 tons of ore, from which gold recovery averaged one ounce per ton. Associated silver values were considered negligible.

Past production from Nuka Bay area has been from small shoots of bonanza gold within lenticular quartz veins which vary from a few inches thick to nearly two feet wide. Veins are traceable for only a few hundred feet before pinching out.

Ten legally located and maintained claim groups are listed in the Nuka Bay area which represents the highest mineral resource potential of the entire proposal. Seven of the ten claim groups are held in part by the same person. The appraisal notes that the actual sale price of the claims to new investors exceeds the gross gold value that could be mined at a profit.

It was concluded in the appraisal that the highest price estimated in terms of money that all ownerships would bring if exposed for sale on the open market is \$70,500.

ABSTRACT

GROSS MINERAL APPRAISAL

WRANGELL-ST. ELIAS NATIONAL PARK/PRESERVE

Author: George Moerlein

Year: 1977

Cost: \$30,000

Pages: 73

This study analyzed past mineral production and claim values for the portions of the McCarthy and Nabesna Quadrangles included within the Morton d-2 boundaries. Mineral production within this area amounted to about 2.1 million dollars, the bulk coming from the Chititu and Dan Creek placer gold deposits. Presently, the placer occurrence in Dan Creek are being actively mined. The Kennicott deposit, located outside the study area of this contract produced some \$200 million dollars in copper and silver.

The study found that no significant amounts of ore grade material are known to occur on any of the claim groups surveyed, nor can any be reasonable inferred to occur at this time. Of all the claim groups covered, serious exploration work during the past several years has been conducted only at the Peavine property and in Dan Creek. Pertaining to the former site, the study states that at this time, no significant grades or tonnages of copper mineralization are known to occur.

Total appraised value of all legally located and maintained claim groups in the area is \$924,000.

Subsistence Resource Use in the Proposed
North Addition to Mt. McKinley National Park
By Richard L. Bishop

Introduction

This study was initiated to document current and recent subsistence use in the proposed North addition to Mt. McKinley National Park.

"Subsistence use", as used herein, generally means the use of renewable resources by local residents for individual, family, or group life-support. It is important to recognize that subsistence use has changed with the times, and aboriginal subsistence living no longer exists.

These cumulative changes have not altered the basic fact that for people who live in the "bush", use of renewable resources is often a vital part of their means to make a living.

The methods used to obtain information about resource use included: interviews and discussions with residents in or near the proposal area; gathering relevant historical information from local people, literature, and knowledgeable non-local people; mapping the locations of trails, trapping areas and other resource information as indicated by local people; my personal experience in the area; and records of hunting and trapping catches, land claims, and other relevant facts on file with government agencies. Some aerial reconnaissance of trails and trapping activity was done. Usually more than one source of information was available for any given subject. For example, two individuals might be familiar with the location and use of a particular trapline, or beaver catches reported in interviews could be compared with Department of Fish and Game sealing records.

The consistency of information checked in such ways was more remarkable than the occasional disagreement.

The proposed North addition is an irregular polygon extending from the present Park boundary north to latitude 64°N , and from very near the Parks Highway on the east to within 20-25 miles of the villages of Lake Minchumina and Telida. The irregularities of the boundaries are largely the result of actual or potential land ownership by the State of Alaska, Native Regional Corporations, and Native Village Corporations. The basic proposed addition includes 1.6 million acres, not including various "areas of ecological concern" and recognized "alternatives" described in the final EIS (U.S. Department of Interior 1974).

For study purposes, the proposed North addition was divided into three areas, principally on the basis of people's use patterns. The Telida area is the geographic area used by Telida residents; the Minchumina area is the geographic area used by Lake Minchumina (and nearby) residents; and the Eastern area (basically all of the proposal area east of McKinley River) is what is left over, and is used by various local and non-local residents.

The Minchumina AreaLake Minchumina

According to Orth (1967) the name "Minchumina" was first reported by Lt. J.S. Herron, USA in 1899, as the Tanana Indian word for "clear lake". The lake is mostly clear water, but in summer the Foraker River carries a highly visible silt burden into the eastern bay.

Lake Minchumina lies at the base of the low Kuskokwim Mountains, 65 miles NNW of Mt. McKinley and five miles NW of the geographic center of Alaska. It is nine miles long, about six miles wide at the maximum, and reaches a known maximum depth of 39 feet. Two long spits partially divide the lake into rough thirds. The western third is becoming very shallow due to a general decline in water level in the last 10 to 12 years, due to aggradation, and to plant succession. In fall, 1976, most of the west portion of the lake was dry; the water level was lower than at any time in the past 35 years.

The waters of Minchumina flow to the Tanana drainage via the Muddy and Kantishna Rivers. The Kuskokwim drainage meanders inconspicuously around the Minchumina watershed in the bogs just a few miles southwest of the lake, and becomes clearly defined where the North Fork, Kuskokwim River arcs around Minchumina to the west and north.

Minchumina's location at the head of navigation on the Muddy River, and only 14 miles from the Kuskokwim's North Fork, made it a crossroads for early surface travel, and a logical place for aboriginal and later hunting, trapping or prospecting headquarters.

In this discussion, the "Minchumina area" is essentially the area reached by traplines or other subsistence-type use originating at Lake Minchumina. By this definition, the area extends north from the north boundary of Mt. McKinley National Park to the North Fork of the Kuskokwim River, and west from the McKinley and Kantishna Rivers to Munsatli Ridge (approximately $63^{\circ} 45' N$, $153^{\circ} 00' W$) about 30 miles west of Lake Minchumina. In addition, one or more traplines have extended northwest beyond the North Fork into the upper reaches of the Sethkokna River. Other exceptions to this general inclusive area may exist, but the area includes the bulk of subsistence-oriented activities originating at Lake Minchumina.

Climate

Climatically, the Minchumina area is typically part of Interior Alaska, with temperatures and precipitation regimes similar to Fairbanks. The growing season length is about 105 days and precipitation is about 13 inches (Al. Rural Devel. Council, 1974). However, winds are stronger and more frequent ^{than in the Fairbanks area} perhaps due to ^{its location} ~~its~~ _{Minchumina's} location in essentially a pass between the Kuskokwim and Tanana drainages, with their often contrasting weather conditions. In summer, southwest winds prevail, while in winter, northeast winds are most common. In both seasons, several-day stretches of high winds (25-50 mph) frequently occur. In winter, severe wind scouring may remove snow from open flats, lakes and riverbanks. Silt from riverbanks and flats often darkens downwind areas, and substantial drifts develop on the downwind margins of lakes, sloughs or other open areas.

Physiography

The varied physiography of the Minchumina area generally resembles the upper Kuskokwim River more than the Tanana watershed to the east. The entire area lies in the zone of discontinuous permafrost (Ak. Rural Devel. Council, 1974).

The Kuskokwim Mountains form a ridge line of summits reaching 2000 to 3000 feet in altitude which is frequently interrupted by broad low passes and by the North Fork, Kuskokwim River. Although these are relatively modest mountains, the terrain is rugged enough to have channeled most surface travel into stream valleys and the available passes. However, summer trails of prospectors and perhaps aboriginal hunters took advantage of sparsely vegetated ridge lines for cross-country access.

Between the Kuskokwim Mountains and the Alaska Range foothills lies a broad, poorly drained lowland which slopes gently to the north. Innumerable streams, sloughs, and bogs lace the black spruce forest flats of the higher elevations. As the gradient decreases, ponds, lakes, and bogs become common; the Muddy River flats are a vast bog, very similar to those in the McGrath-Medfra area described by Drury (1956). The cycle of bog-black spruce forest development as described by Drury and amplified upon by Viereck (1970) has very important implications for land and resource use, which will be commented upon later.

Water levels in lakes and ponds have declined over the last 10 to 12 years. A prevailing opinion among local residents is that the 1964 earthquake, which was strongly felt, in some way precipitated a drop in the water table. One man was crossing the Muddy River with his dog team

when the earthquake struck, and the ice opened up under his dogs. Fortunately, his lead dog was well trained; he gave it a "come, haw", and the dog turned back and swam across the open lead with the others following! The man made a wide detour to the lake, where the ice was sound, to reach home. A second theory on the lower water level in Lake Minchumina is that siltation has raised the lake bottom, which has increased the gradient at the outlet and resulted in increased scouring and deepening of the channel. This in turn has allowed the water level to drop. This does not account for generally lower water downstream, however. Whether or not the earthquake was the causative factor, there is no doubt that Lake Minchumina is two to four feet lower, and many ponds and sloughs which once had permanent water connections with the Muddy River and/or with each other are now disjunct except at high water. Sedges, grasses and shrubs are colonizing their beaches.

Vegetation

The distribution of dominant vegetation types in the Minchumina area is similar to much of central Interior Alaska. On the well-drained southerly exposed slopes of the Kuskokwim Mountains, Viereck and Little's (1971) "closed-spruce-hardwood forest" predominates. However, virtually all of the forest adjacent to Lake Minchumina has burned in the past, and dense stands of birch cover most of the slopes.

A very few small, widely scattered stands of mature white spruce persist in the hills and on well-drained old levees along some streams. Individual white spruce are conspicuous by their rarity; their dark hues

and conifer shape punctuate the expanses of birch. On particularly dry, warm exposures, various-sized stands of aspen often occur.

Because of the varied topography, exposure, drainage conditions and permafrost, much interspersed of other vegetation types occurs in the Kuskokwim Mountains. Open, low-growing spruce forest occurs in valleys, gulleys and on northerly exposures; on higher ridge tops, shrub thickets and moist or alpine tundra replace forest associations.

The broad lowlands extending south from the base of the Kuskokwim Mountains are a startling contrast to the mountains, both topographically and vegetatively. Although many of the same species occur in both places, the relative importance, or abundance, of larger forms is essentially reversed. On the lowlands, open, low-growing black spruce forest is the major vegetation type. Treeless bogs and shrub thickets are well represented on the flats. Practically speaking, [however] for 30 to 50 miles south of the Kuskokwim Mountains, the country is one big black spruce bog; in summer it is difficult of access due to surface water and tussocks.

Drury (1956) pointed out that bogs tend to take over lowlands by encroaching on ponds, by thawing permafrost areas at the bog margin, and by gradually flooding low areas. Bogs gradually enlarge and coalesce, and may eventually cover many square miles. "Islands" of black spruce forest are left as bogs grow, but given time these islands also succumb to the bog. Portions of the bogs eventually fill with plant remains, silt, and maybe windblown soil (loess). On these areas mosses and other land plants eventually take hold, permafrost again develops which tends to raise the surface, and gradually a black spruce forest again develops. Drury points out that

because of the peculiar conditions of permafrost, poor drainage, and soil types in lowlands of Interior Alaska, this cycle of bog-black spruce forest is (1) very widespread and important in determining surface physiography and vegetation, and (2) likely to continue more or less indefinitely.

An important consequence of the bog-forest interplay is that these particular ecological conditions will persist over great periods of time, and will continue to provide habitat for various animal species adapted to them.

It may be that the effects of certain types of intrusion into bogs by man, such as trap line trails, and perhaps even "cat" trails, are insignificant when imposed upon these remarkably powerful and persistent natural processes--they are likely to be "swallowed up"!

A practical consequence of the development and maintenance of black spruce-bog vegetation is that these vegetation types are prime habitat for furbearers. In particular, the open low growing spruce forests seem to be the ideal Alaskan habitat for marten, and the pursuit of marten has to a large degree shaped the pattern of recent subsistence uses in the Lake Minchumina area.

The Community

Lake Minchumina was apparently frequented by Athabascans in prehistoric times. House pits and artifacts have been found at both east and west ends of the lake by recent residents and by archaeologists, the latter including Charles Holmes (Alaska Division of Parks, Eugene West (University of Alaska), and Edward Hosley (formerly with the University of Alaska). Several former

Athabascan trails are known to local people, and parts of at least two such trails are still used as trapline trails. Hosley (1966) indicated that early Athabascans previously used the area south of Lake Minchumina as hunting and travel areas, in addition to the Lake and connecting waterways.

In more recent times, Athabascans from both the Tanana River and upper Kuskokwim River frequented the area. Alfred Starr, Sr., of Nenana and Birch Creek, said that a village existed at the mouth of Old Woman Creek on Lake Minchumina in spring, 1907 when, as a boy, he visited relatives there with his family who were from Tanana. The Starr family travelled cross-country to Minchumina before breakup and after breakup floated back to Tanana. Starr noted that the Muddy River flats were once noted for the abundance of muskrats, and hunters sometimes came from as far as Tanana and Coschaket to hunt muskrats in spring.

Apparently there was a strong connection between Minchumina and Coschaket. Starr told me of several earlier Indian residents of the Minchumina area, including Chief Peter, now buried at the mouth of Birch Creek, and "Old Andrew", who was buried near the present FAA housing site. A news item from The Kusko Times newspaper (formerly published at Takotna) for August 24, 1929, tells of a potlatch in Tanana during July, 1929, which was held to honor Chief Andrew Evan of "Crossjacket" (sic) and others who had died recently. Also in attendance was Chief Peter Henry of "Crossjacket". According to Mr. Starr, whose wife was born in the Minchumina area, Chief Peter and Old Andrew were no doubt the men mentioned in the account of the potlatch.

Gordon (1917) mentions meeting seven Indian people at Minchumina on July 25, 1907. These people told him that the rest of their group were hunting in the mountains. They also told Gordon that two white men preceded him by 10 days over the portage to the Kuskokwim, and that these and Herron's expedition were the only white men that had been in the country as far as they knew. Sheldon (1930) noted that Indians from Minchumina used the Toklat Springs area, and that a band was present when he visited there in January, 1906. Wickersham (1938) stated that Coschaket people hunted the Toklat River and formerly lived in the area for much of the year. He also noted that on May 22, 1903, he met two white trappers on the Kantishna who came from the Kuskokwim via the Minchumina portage. Those scattered records and accounts give some idea of the mobility of early Athabascan residents, and indicate that Coschaket and Minchumina groups were not entirely separate.

Contact with people of Telida and Nikolai also occurred. According to Ray Collins (vive voce) Carl Sesui of Telida had relatives on the Tanana River, and other intermarriages with people from the Innoko and Tanana occurred. Also, Gleeman Esai, of Nikolai, went to the Minchumina area in the 1920's when a meeting was held to consider ways of coping with widespread disease which was causing numerous deaths among the Athabascans (Ray Collins, vive voce). In this regard, Alfred Starr commented that he thought influenza or other disease was the major reason few Indians were living in the Minchumina area by the 1920's and '30's.

Hosley (1961) reported that Bob Stone, an early prospector and trapper of the upper Kuskokwim, found Indian camps on the Foraker and McKinley Rivers.

Hosley also noted that the family and cultural ties of people in the Minchumina-Kantishna area were mainly with Tanana River people, rather than Kuskokwim people. He made the general statement that the impact of disease was the most common reason for abandonment of living places.

While this is hardly a complete review of Athabascan activity in the Minchumina area, it does indicate that in the early 1900's Athabascans, mainly from the Tanana, regularly lived in the area, and that in the 1920's and '30's, most were gone as the result of disease and of moving elsewhere. Alfred Starr, Sr. stated that in 1935, when he and others from the Tanana visited Birch Creek, they helped Roosevelt John put in a fishwheel. There was no one else there.

The records of Wickersham (1938) and Gordon (1914) indicate that white trappers and prospectors were going through the Minchumina area as early as 1903 and 1907, but the first man to settle at Lake Minchumina, with any permanence, was apparently a man named Edward Kammergard who arrived in 1917 (Val Blackburn, personal communication). A slow trickle of white people who stayed various lengths of time continued through the '20's and '30's. For example, from his talks with oldtimers, Val Blackburn learned that 12 men had come to Minchumina during the 1920's. Most had left by 1940, or perhaps earlier. The main incentive for moving into the country seems to have been gold prospecting, but a number of the prospectors turned to trapping either as an alternative income, or, in many cases, as their main profession. The majority of the existing traplines originating at Lake Minchumina were established in whole or in part by these early trappers. The "ownership" of contemporary traplines can often be traced

back through a series of trappers, to the prospector-trapper who first blazed the trails in the 1920's or 1930's, and who undoubtedly took advantage of existing Indian trails.

According to Val Blackburn, at the peak of trapping effort during the 1930's, 14 trappers were based at the lake. In addition, four fur farms were started during the same general period (late 1920's throughout early 1930's), most of them by enterprising and optimistic trappers of the area. All of the fur farms expired by 1940, most likely due to fur market conditions. However, overuse of the fisheries and game resources to provide feed for sled dogs and for captive mink and fox reportedly occurred and may have been a major contributing factor.

Two roadhouses were established at the lake, both adjacent to the outlet. Kammersgard established the first one at an early date; he left Alaska in 1931. In 1929, White began a roadhouse and fur farm which was completed about 1931. Most of the buildings were made of hand-hewn squared birch logs, and are still standing. Like most roadhouses on cut-of-the-way trails, White's closed down not long after the end of dog team mail delivery, although early aviators also stopped there. Lone Star Roadhouse, the next roadhouse west of Minchumina, closed in 1931, as a direct result of the end of dog team mail delivery.

Lake Minchumina languished as a community from the late 1930's until 1941 when, as part of the war effort, construction of a large airfield was begun. New people were attracted to the area, and some of them either stayed or returned to Minchumina after the war. A "second generation" of trappers acquired the old traplines or developed new ones. Fur prices

were generally high following World War II, and trapping flourished. There were six to ten active trappers during the post-war period, each of whom covered a substantial length of trapline. Because of declining fur prices and other complications, some individuals reduced their efforts or ceased trapping altogether by 1961. However, two to four trappers have continued to the present time. A few people otherwise employed also trapped part-time on portions of the old lines, and occasionally a new person has moved to the area for one to a few years to try bush living.

From 1941 through 1969, the Federal Aviation Agency maintained a station at Minchumina which employed a number of people, some of whom took advantage of the opportunities to hunt, trap, or pursue other local diversions. Two of these families have settled permanently at the lake.

The present maximum population of Lake Minchumina is 29, but of this total, 12 are either part-time or short-term residents (eight part-time, four short-term). The part-time residents are all long-term residents who, for various reasons, are obliged to spend part of the year elsewhere. Over the last two years, the usual number of people at the lake has been about 25.

4- Of the 12 households with 29 people, three households, including 11 people and 21 dogs, have a large dependence on subsistence use, including hunting, trapping, fishing, wood gathering, logging, berry picking and gardening. Two households totaling three people have a moderate dependence on subsistence, seven households, with 15 people, have a limited dependence on subsistence. All but one household depend entirely upon wood for heating.

Thus, the Minchumina community is presently a good example of the sort of "mixture" of subsistence and non-subsistence life support common in rural Alaska today.

Over a period of nearly 60 years, the Minchumina area has supported a relatively low population of subsistence users. The degree of use has varied greatly, perhaps more in response to economic conditions than any other single factor. However, for a few people who were willing to accomodate the ups and downs of resource availability or value, or who found additional means of support, the Minchumina area has provided homes and a place to pursue a subsistence, or at least a rural lifestyle.

Presently, there are no permanent residents in the Minchumina area except at Lake Minchumina. However, one family formerly lived at the mouth of Birch Creek. Various family members now use their former homesite as a trapping headquarters during winter and spring.

The head of this family is originally from Tanana, but his wife was born on the Muddy River at Clear Creek (unnamed on the map). In February, 1945, this family left Tanana via dog team at the request of the wife's great-uncle. They arrived in the Minchumina area in April, and shortly thereafter the great-uncle died. The family buried him in the graveyard across the river from the present cabin where several other early Indians, residents of the Minchumina area, are also buried, including apparently, Chief Peter Henry, whom I mentioned earlier.

The family lived at the mouth of Birch Creek until 1955 when they moved to Nenana so their children could go to school. From 1955 until 1963, when the father retired from his job in Nenana, the family ~~were~~ ^{were}

unable to spend much time at Birch Creek because vacations were too short. Since 1963, the father said he has been able to spend part of almost every year at Birch Creek, often in company with other members of his family.

I do not have a completely clear conception of the area used for subsistence purposes by this family while they lived at Birch Creek full-time. However, from conversation and what we could determine on the maps, they formerly trapped the flats upriver about as far as the Beaver Cabin (see Minchumina area resource map). Like others who trapped on the flats, they mostly went from lake to lake, and did not use many long, well-defined trails like those used principally for marten. We did identify one trail from Birch Creek to Starr Lake and back to the Muddy River near the Birch cabin. It would probably be fair to say that they trapped the flats on both sides of the Muddy River from the mouth of Birch Creek to as far west as the Beaver cabin (see resources map). This corresponds to what was reported to me by one Lake Minchumina resident whose trapping area lay to the west of the Beaver cabin. But, as I mentioned earlier, there ^{has been} ~~was~~ considerable disagreement over what trapping areas belonged to whom. When some additional trappers from Lake Minchumina began trapping on the Muddy River flats, conflicts developed. Although the basis for the conflicts has never been satisfactorily resolved, with less trapping effort on the flats by all concerned, confrontations have been avoided.

On the flats, this family traps mainly for mink, marten, and beaver. During their permanent residency at Birch Creek, their average annual

catch was about 60 to 70 mink and marten. They generally took their limit of beaver, the number probably depending on current regulations and the number of people in the family who were old enough (11 years or older) to claim beaver. In spring they hunted muskrats and took up to 300 in one year. In recent years muskrats have been scarce; in 1976 they got about 40. Since 1963, when their residency has been part-time, their catch has been variable and generally lower. During many of these years, the father would fly in and just walk the traplines, which limited the area covered. In some years these trappers used either dogs or a snow machine for transportation.

In the current season, the father and one son began trapping in mid-December, 1976. They expect to remain through breakup and drive a snow machine in from Nenana for transportation in beaver trapping. At present, the family feels that the trapping area they generally use lies within about an eight to ten mile radius of their cabin. The longest line they are presently using is about 11 miles one-way.

In addition to the trapping area on the flats, there is a trail south from the mouth of Birch Creek which crosses the Kantishna and the McKinley River and runs south almost to the Park boundary. According to the father, this trail is very old, and was used in the early days when people walked to the mountains in fall to hunt sheep or caribou. Later it was used as a trapline trail by Roosevelt John, and still later by the present family when they had dogs or a snow machine. There were three cabins on the line, but two had fallen down. The third is apparently not far from Eagle Gorge. I was unable to find it by aerial reconnaissance

in early March. Although they have not often used this trapline in recent years, except that part within walking distance of the cabin, the family consider this trail part of their trapping area. There was apparently a "gentlemen's agreement" with Slim Carlson (now deceased) whereby the Birch Creek family trapped east of the McKinley River and Carlson trapped west of that river (his trap line mainly follows Slippery Creek).

When this family lived at Birch Creek permanently, they had a summer-fall fish camp at the outlet of a lake about 20 miles up the Muddy River. In those days, fishing was good, and, using gillnets, they were able to catch and dry a winter's supply of whitefish for dog food. They caught some sheefish also, but only one king salmon in all the years they fished there. "Fish Camp Lake" as they call it, has almost completely gone dry in recent years and is not used by any number of whitefish. Except for netting a few fish to eat, these people have not actively fished for some time, since they no longer use dogs at Birch Creek. I do not know how well Roosevelt John did with his fishwheel back in 1935, but perhaps more salmon ascended the Muddy then than now, or he may have been catching salmon bound up Birch Creek.

Moose were the principle meat source when the family lived at Birch Creek, but caribou were sometimes killed also. Numbers of caribou wintered around 7-mile Hill in the years when caribou were abundant. Wolves were also numerous in those years.

A number of lakes and other features on the Muddy River flats have Athabascan names, but I was unable to write them down and the maps were difficult to read, especially in dim light. It should be possible to identify

places with additional time and some help in transcribing the Athabascan names.

Three or four years ago, the family built a new cabin next door to their old home. Logs were gathered from the immediate vicinity and from along Birch Creek where large spruce grow on the levees. Their firewood comes mainly from an old burn which reached the opposite side of the river about 200 yards downstream from their cabin. The burn extends from the Kantishna River southwest about 12 miles to the hills along Birch Creek, and reaches from the McKinley River almost to Birch Creek.

The father is quite concerned about retaining the right to use the traplines and other local resources, as he and his family have in the past, whatever may be decided with regard to land classification. He also is concerned about the overlap in trapping areas on the Muddy River flats.

Large Mammals

The variety of big game species found in the Minchumina area is generally similar to other parts of Interior Alaska. Variations in abundance of these species exist with respect to other areas, and with respect to the past, as one would expect. To the best of my knowledge, fauna of the Minchumina area (and of the proposed North addition) have not been studied extensively. Many of the following observations and opinions are those of residents of the Minchumina area.

a. Moose

Apparently moose have been common in the Minchumina area for some time, but their abundance has varied. The following excerpt is from the

Territorial Governor's report of June 30, 1919 (quoted from Merrill, 1920). "on the breeding grounds about Lake Minchumina there are about 1500 moose, but they are suffering from disease, from the attacks of wolves, and from unlawful killing." The source of the Governor's information is not given.

A Minchumina resident told me that in 1923, Herman Olson walked to Minchumina from McGrath and said there were "no moose and no wolves" near [the] Minchumina, but there were caribou.

Another resident who has accumulated historical notes about Minchumina said that in addition to fish, fur farmers in the 1920's and 1930's fed both moose and caribou to the captive mink and fox. It was his understanding that moose numbers were substantially reduced by this activity and by the use of moose to feed dog teams. The same man said that in 1941, when he first visited Minchumina, there were few moose and few wolves.

Moose apparently increased, because all residents who were here in the 1950's stated that moose were quite abundant then, and into the mid-to late 1960's. Thereafter a decline in moose became apparent.

Various opinions on the reason for the recent moose decline are expressed by residents of Lake Minchumina. Lack of predator control, antlerless moose season, increased hunting, and severe winters have all been suggested. At its most intense, hunting has been relatively light, and it is unlikely to have been an important factor. For many years, the number of moose taken locally was about 25. Some hunters flew in, with or without guides, and a few hunters came upriver by boat, but the numbers were small. Residents have noted that wolves were quite abundant during the

1950's and it may well be that predation by wolves, and perhaps by bears, played a part in the decline of moose, as it has in other areas of Alaska (Bishop and Rausch, 1974). However, I believe the most important precipitating factor was recurrent winters with prolonged periods of deep snow such as affected much of Interior Alaska from 1960 through 1971 (Bishop and Rausch, 1974).

Despite their reduced number, moose remain the most important source of meat for local residents. Most residents have been able to get a moose, but to succeed requires considerably more effort than in former years. In 1975, residents of Minchumina took seven moose, and hunters from elsewhere are known to have taken four to five moose. In 1976, residents took five moose, and at least three were taken by residents of other communities. It is likely that additional moose were taken by one non-local group. In both years, two to four of the moose taken by non-local hunters, who used aircraft for transport, were killed well away from the area hunted by local residents.

The Muddy River and Lake Minchumina are accessible by boat from the Tanana River, but in the past, few hunters have come up the Muddy. It is a long way from any road access, and the area does not offer superior moose hunting. Nevertheless, in 1976 seven boats from other communities reached the Muddy River in moose season and five of those went all the way to Lake Minchumina. As far as I know, none of the hunters bagged a moose in the Minchumina area. The limited hunting by non-local people does not seem to have interfered with the success of local hunters, nor

does it seem a matter of great concern to most Minchumina residents. However, residents do recognize that if a great deal of hunting by non-locals occurred, it could effect their own success.

b. Caribou

During the period 1931 to 1961, the Minchumina area was a major wintering grounds for caribou (Hemming, 1971). Observations by Minchumina residents agree.

As early as 1941, caribou were so common in winter on the lowlands south and west of Minchumina that driving a dog team was difficult, and sometimes hazardous because the dogs were so likely to chase caribou at any time. Caribou, or their tracks, were commonly seen on traplines extending south to the Park boundary and on the Muddy River flats through the 1950's. During the same period, one resident stated that in winter it was almost a daily occurrence to see caribou on Lake Minchumina. Another resident said that while flying over traplines near the Park boundary in the Foraker River-Birch Creek-Slippery Creek area during winter, 1959, he saw "lots of caribou, and lots of wolves".

According to Minchumina residents, numbers of caribou wintered in the area as late as 1964 to 1966, somewhat later than Hemming (1971) indicates. A resident whose trapline approaches the Park boundary stated that caribou tracks were common on his trails as late as 1969, but he has seen few since then. During the last 1½ years, tracks of small bands have been seen in winter on the McKinley River (about halfway between the Park boundary and the Kantishna River), in the Castle Rocks area, near the south side of Lake Minchumina, along Birch Creek (about 25 miles SE of Minchumina),

and about 40 miles south of Lake Minchumina along a trapline trail. A single track was seen on the Muddy River in fall, 1975. Thus a few caribou, presumably of the McKinley herd, still winter in the Minchumina area.

Because caribou are scarce and because the hunting seasons have been abbreviated, caribou no longer are used by Minchumina residents. In the last two years at least, none have been taken. When they were abundant, caribou were an important source of food and hides. In the early days of trapping, caribou were regularly used for dog food as well. This use continued into the 1940's to some extent, and it may have continued even later in locations relatively isolated from other sources of dog food. By the early 1950's however, most long-line trappers imported dried salmon for use on the trail, and fed locally caught fish at other times.

Apparently caribou were also used to feed captive furbearers when fur farms were in operation at Minchumina, but I have no information on the extent of their use.

In retrospect, the widespread use of caribou in earlier times was undoubtedly important to the people involved, but some of the uses were not legal. Fortunately, various circumstances, perhaps including "flying game wardens" minimized such uses.

It is tempting to speculate that widespread use of the McKinley herd caribou as food for people, dogs, and captive furbearers may have contributed to the decline in that herd. The peak use of caribou probably occurred in the late 1920's through perhaps as late as 1940, although I suspect use tapered off before then. During World War II, few trappers or others were in the bush, so caribou use during that period surely was much lower. No doubt there was increased use after World War II, but at least in the

Minchumina area it seems to have been mainly for human consumption.

The highest estimate of the McKinley herd was 30,000 made by Adolf^{ph} Murie in 1941 (Hemming, 1971). The next estimate, of 12,000, was made by Ronald Skoog in 1963 (Hemming, 1971). Thus, the highest population estimate was made soon after the period when caribou use was probably greatest, and suggests to me that this use was not the cause of the caribou decline, even though it may have been illegal, in part, or at least an extravagance which would not be condoned today.

c. Black bear

Black bears are common in the Minchumina area, although in most years they are not often seen. Residents have noted that black bears are more numerous, or at least more conspicuous, in some years than in others. In [1963 or] 1964, when numerous conflicts between black bears and people occurred all over Interior Alaska, bears were frequently seen around Lake Minchumina, but no attacks by bears occurred.

In 1976, five bears were seen at various places around the lake. Two were shot for food and the hides were saved. In 1975, four bears were seen. One was shot after repeated attempts to scare it away from a fish drying rack. Both the meat and hides were saved. In general, it seems that black bears are not actively hunted, but are taken when they pose a threat to property, incidental to other hunting, or when other meat is not available. For the most part, black bears are regarded with tolerance and interest.

d. Grizzly bear

Grizzlies are not common in the lowlands of the Minchumina area. They seemingly pass through the lowlands at infrequent intervals, although a single grizzly track has been seen almost every year in the fall, near

the outlet of Lake Minchumina.

On traplines between Minchumina and the Park, grizzlies or their tracks are seen often enough in November and December to encourage trappers to carry an adequate rifle. Slim Carlson related several encounters with grizzlies over the many years he lived and trapped in the Birch Creek-Slippery Creek areas (Thiede et.al., 1970).

Other trappers have encountered grizzlies on their traplines, even on the lowlands, sometimes under rather trying circumstances. Grizzlies are not ordinarily sought for food or hides by Minchumina residents and in general contact between grizzlies and people is infrequent. As a result, neither species contributes significantly to the subsistence of the other.

e. Wolf

Wolves are common in the Minchumina area, although residents agree that there are fewer wolves now than there were 10 to 15 years ago. Most residents feel that the wolves have declined because the moose and caribou had declined.

However, wolves are not scarce. I often hear them howling on the flats by the Foraker River, or in the hills behind my home. A pack of three wolves often crossed the lake (at least once a month) in front of my home in winter 1975-76. What seemed to be two other packs regularly visited the lake that winter; one pack consisted of four or five, the other of four to six animals. It is possible they were the same pack. In addition, a single wolf track was sometimes observed. On at least two occasions in the last two years, wolves have come within a few yards of people's homes, in both cases where sled dogs were kept.

In late 1976, tracks of a pack of three, and a pack of four to six were seen on the lake. The larger pack killed two moose within 300 yards

of each other on the edge of the lake in November, 1976. In addition, trappers observed wolf tracks south of Lake Snohomish, and in the vicinity of Birch Creek, where a moose was also killed.

The number of wolves caught by trappers varies from year to year. In 1975-76, four wolves were caught by trappers. A fifth wolf was caught but was eaten by the remaining wolves. Wolves are probably the most difficult species to trap, and they range widely. Until recent years, wolf pelts were not exceptionally valuable. As a result, most trappers do not spend a great deal of time pursuing wolves. Usually wolf traps are set where a likely location is found along or near a regular trapline. Wolves are sometimes caught in traps set for lynx or wolverines.

In earlier years, wolves were more abundant and more were taken by local trappers. A \$50.00 bounty was paid until about 1968, which stimulated some trapping effort. Prior to Statehood, most trappers in the area were issued permits to trap wolves during spring, summer, and fall, and did so. As one resident noted, "dollars were scarce then", and ^{the bounty from} three or four wolves represented substantial additional income to residents.

Some wolf hides are tanned (usually commercially) and used locally for parka ruffs, mittens, or mukluk tops.

Furbearers

The principal furbearers in the Minchumina area, in addition to wolf include wolverine, marten, mink, otter, lynx, red fox, beaver and muskrat. Ermine, or weasel, are also common, and coyotes are present but are not numerous.

a. Marten

From the standpoint of trapping, marten is the most important species, as it has been historically. Beaver is a close second, and mink is the third species in importance. For some trappers whose traplines do not lie in prime marten habitat, beaver are of first importance in most years with mink sometimes of equal or greater importance.

Marten are found in spruce forests throughout Alaska (Lensink, 1953). My own general observation in the Kuskokwim drainage and in the Minchumina area suggest that the greatest marten densities occur in the black spruce forests characterized by Viereck and Little (1971) as "open, low growing spruce forest". Such areas are popularly known as "black spruce flats" or sometimes "black spruce bogs". These flats can be quite extensive, and are often characterized as worthless or useless because they are not arable, they do not produce merchantable timber, and they are poor habitat for many popular wildlife species. Further, black spruce flats are among the least scenic of Alaska's landscapes, and among the least negotiable for travel except in winter. [A considerable part of the black spruce flats in the Minchumina area are part of the bog complex described by Drury (1956).] But, as marten habitat (and in many areas as caribou winter habitat), black spruce flats excel. This fact was not lost on trappers, and the most productive marten traplines I am aware of are located in black spruce flats.

The key to the great abundance of marten in black spruce flats seems to be food, but cover must also be important. Lensink (1953) found that the main food of marten was red-backed voles and yellow-cheeked voles, while blueberries (with some crowberries and bearberries) were second in importance. All of these commodities reach remarkable abundance in black

spruce flats. There is surely a direct relationship between food supply and abundance of marten. This relationship is recognized by Minchumina trappers. One trapper said that when there are lots of "lemmings", there will be lots of marten.

Trappers in the Minchumina area have seldom seen a year when marten were scarce, but there have been years when they were less numerous, and still other years when for some reason marten were only casually interested in bait. In one of those years a local trapper travelled about 160 miles by dog team and caught only one marten! Another trapper stated that since 1963 he has not seen a year when marten were scarce.

Under some circumstances, trapping may reduce the number of marten. Lensink (1953) noted one case on the North Fork Kuskokwim River where a high catch seemed to lower the following year's catch. He also noted that from 1911 through 1951, the number of marten shipped from Alaska declined greatly in the year following a year of very high marten catch. In that era, the usual remedy was to close the season for one or more years. However, the records are of dubious value because in many places marten were trapped during the closed years as well. The furs were either smuggled out of the Territory or held until an open season was again declared. Apparently the better marten trapping lines were not greatly affected by intensive trapping, possibly because traplines were far enough apart to avoid over-exploitation of the general marten population. Lensink (1953) suggested that such spacing as a management tool might help avoid over-exploitation.

In the sub-optimal habitat, marten have been scarce. One trapper noted that there are more marten on the Muddy River flats now than there were in the mid-1950's. He also said that marten have become common adjacent to Lake Minchumina only in the last five to six years. In both areas, I suspect habitat changes ^{through plant succession} have been responsible for the increase.

A marten trapline is more literally a "line" than a trapline for any other species. In general, a trail is laid out through the area to

be covered, and at fairly regular intervals along this trail sets are made which consist of some attraction for marten, and a trap. In the Minchumina area, cubby sets are preferred. A wide variety of baits are used. In a pinch, trappers have successfully used a piece of paper, tin foil, rag or whatever else was handy. Lensink (1953) discussed at length the marten's preoccupation with food beyond virtually all other considerations, and the trappers' experiences bear this out. In addition, marten will readily step on an undisguised steel trap. Conventional steel traps are used almost exclusively. Conibear traps have been used a little, and opinions on their effectiveness are divided. Before steel traps were readily available, deadfalls were used. Local history includes the story of the Berrys (later of Medfra) who ^{walked} ~~ran~~ a deadfall line from the North Fork, Kuskokwim River south to near Carey Lake, a distance of about 75 miles.

Marten sets are made at frequent intervals along the trail. Where good habitat is uninterrupted, from four to 12 sets may be made per mile, depending upon how abundant marten ordinarily are in that section of line. The more abundant marten are, the more sets are made. The longer marten lines recorded in the Minchumina area varied from 50 to 150 miles long, and 500 to 1000 traps may be used. Not all of the trapline may be used in any one year.

In addition to the main trails, shorter "sidelines" are often laid out, to take advantage of adjacent habitat that may harbor animals which never reach the main trail. Ideally, sidelines are circles so that the trapper can make a one-way trip rather than using half his time returning past traps he has already checked, but many sidelines are short, straight trails. Usually sidelines are located at or near a cabin or tent camp.

One Minchumina trapper had two circular sidelines which he used alternately. At the one in use, he stopped for a day to rest his dogs and run the sideline, and perhaps skin his catch as well. Some sidelines amount to a substantial portion of the trapline. These often have a camp on them and require more than a day to run. The accompanying map illustrates the lengths and varied configurations of these traplines.

Although the number of marten caught may vary depending on marten numbers, weather, and effort of the trapper, those trappers whose lines are in good habitat consider 100 marten an acceptable season's catch. In years when marten are abundant and excessive snow does not bury traps and impede travel, substantially higher catches are possible. Slim Carlson recalled that in his best year he caught 250 marten (Thiede, et.al., 1970) but his average was considerably lower.

Marten trappers usually tried to start trapping as soon as the season opened, which has changed from November 15 to November 1, to the present October 20. Usually trappers stopped trapping about Christmas time. Later they would begin beaver trapping. Those trappers whose traplines were not exclusively for marten often continued through January or February, depending upon the ^{regulations} seasons. The same general pattern prevails now.

There are fewer active trappers in the Minchumina area now than there have been in most past years, although most of the lines are still owned (in the traditional sense) by someone. As a result, the number of marten caught annually has declined. For example, in 1947-48, about 1000 marten were taken in the Minchumina area, whereas in 1975-76, the catch was about 200.

b. Beaver

Beaver are found well into the foothills on ponds, small streams, and sloughs, but they are most abundant on the more lush river bottoms and

flats. The greatest concentrations of beaver are found on the Muddy River and Foraker River flats, but they are also common from immediately south of Lake Minchumina south and southwest throughout the flats, where there are numerous lakes and ponds. The North Fork, Kuskokwim River valley also supports good numbers of beaver.

I have little information at present on early beaver trapping in the Minchumina area, but it surely occurred as it did in other parts of Alaska. Whatever may have been the case prior to World War II, beaver were not seriously affected. When post-war trappers began trapping on the Muddy River flats, beaver were very abundant.

Apparently very little beaver trapping was done on the Muddy River flats until the mid-1950's, or possibly a little later. Some trapping was done on the flats southwest of Lake Minchumina. The major stimulus to beaver trapping seems to have been a considerable drop in marten prices about 1958. Trappers who had depended upon marten trapping turned elsewhere when it became unprofitable.

Between five and eight Minchumina people annually took limits of beaver from the Muddy River flats during the period 1958-1969. The legal limit varied from 10 initially, to 15, and finally to 25 per person. In addition, beaver were trapped on the flats by a family living at the confluence of the Muddy River and Birch Creek.

In contrast to the very clear definition of marten traplines, there was confusion and disagreement over rights to trapping areas on the Muddy River flats. The result was rather competitive trapping, which probably contributed considerably to the decline of beaver. Eventually, trapping pressure declined and some agreement was reached about beaver trapping areas.

Meanwhile, the general water table had dropped, which reduced the available habitat. Beaver have not reached their former abundance, but according to one trapper, they have been fairly stable in numbers since about 1969. I believe that if the habitat were better, beaver would increase, but unless the general water table rises considerably, neither habitat improvement nor substantial beaver increases will occur.

During the period 1958-1969, I estimate the beaver taken from the Muddy River flats and adjacent areas by Minchumina trappers ranged from 100 to 175 per year. In the last five to six years, the catch has probably ranged between 100-125. Beaver sealing records from the Alaska Department of Fish and Game (Table ____) tend to agree, but sealing data contain inaccuracies, and cannot be considered absolute figures.

The value of beaver pelts has varied tremendously since World War II. Immediately after the war, their value was quite high, but by 1953-1955, the value was very low. Since then prices have been moderately low, until the last two years when some improvement occurred. The largest pelts, called "blankets" or "superblankets", sold for up to \$55.00 in spring 1976, which is the highest price paid for some time.

Four Minchumina people regularly trap beaver now, and to them beaver are an important source of income. Two additional people trap a few each year. Most beaver pelts are sold, but a few are kept for domestic use. Some beaver meat is saved for human use, but most of it is used or sold for dog food. It is highly prized for both purposes. The hind feet of the beaver are often skinned and pickled to be eaten much as one would eat pickled pigs' feet.

Beaver traplines are considerably different than ^{most} other traplines (except muskrats). During the winter, beaver are restricted to their house

and food supply, or cache, unless unseasonably warm weather results in open water. The trapper locates houses, or lodges, occupied by beaver and during trapping season travels to them, rather than anticipating that the furbearer will travel to his traps. As a result, the trapper's line takes him from lake to lake and lake to slough in an irregular course which depends on the distribution of the occupied beaver houses. A generally circular route is desirable, but not always possible.

At the beaver house, a large hole is cut through the ice, with an axe or pick, and an ice chisel. Snares are used to catch beaver, but there are many variations in the way they are set. A common technique is to push a long, freshly cut willow or aspen through the hole and into the bottom of the lake. Several snares are suspended from stout poles laid on the ice. The snares are arranged so that the beaver will be caught when (and if) it investigates or tries to cut the willow bait pole. The set is commonly made between the house and cache where the beaver is most likely to travel in its usual routine of cutting pieces of brush at the cache and taking them into its house to eat. The sets are checked every few days and serviced as necessary. Usually the hole freezes over by the time a beaver is caught, but if it does not, the beaver may climb out and escape or be caught by a predator.

There are few beaver trappers who would not agree that it's a lot of work, particularly if the weather is cold.

c. Mink

Mink inhabit rivers, streams, lakes and sloughs throughout the Minchumina area, but like beaver, they are more abundant in the river bottoms and flats. In the 1950's and early 1960's mink were quite abundant in the better habitat near Lake Minchumina. For two or three trappers mink were the most important

Table __. Beaver Trapped in the Minchumina Area, 1967-1976*

<u>Year</u>	<u>Number of Beaver Sealed*</u>
1967	163
1968	155
1969	141
1970	36
1971	75
1972	151
1973	83
1974	66
1975	unknown
1976	128

*Data from Alaska Department of Fish and Game computer print-out of Beaver Sealing records. In some years, Sealing records appear incomplete, e.g. 1975; these data should be considered estimates.

furbearers trapped in early winter, rather than marten which were less abundant in lowlands than they are now.

Although mink are very different in their habits from beaver, their distribution is quite similar. Trappers necessarily pursued an irregular, variable, lake-to-lake trapline as with beaver. A competitive trapping situation, very similar to that described for beaver, developed on the Muddy River flats but did not last as long. When marten prices rose again in about 1961, those trappers with marten lines returned to them. Mink trapping continued to be good for the remaining trappers until 1965 or 1966 when mink number^s declined sharply and rapidly. In this case, it seems unlikely that trapping was the cause of the decline, but the remaining mink trappers had to turn their efforts to other species. In the last two years, mink seem to be increasing again, according to residents familiar with mink and the flats.

Although there is presently more emphasis on marten and other species than on mink, even in the bog or lowland areas, three people actively trap in various parts of the flats and mink are an important alternative species for these people, especially in the event that either numbers ^{of} or value of other furbearers again decline.

Trapping techniques for mink are somewhat different than for marten. Mink frequent the margins of water bodies, and that is where the trappers must go. Although the cubby set commonly used for marten will work for mink, much better success is achieved by locating holes in banks, old beaver houses, and other places mink habitually use. Bait may be used to attract the mink, or the traps may simply be set where the mink will travel. Conventional steel traps are commonly used, but Conibear traps are often better adapted to this kind of trapping.

During the peak of mink trapping effort, as many as 200 to 250 mink may have been taken in the Minchumina area, but this is very hard to substantiate. The current catch is on the order of 20 to 50 per year.

d. Other furbearers

For various reasons, the remaining furbearer species are of lesser importance to area trappers, although some effort is usually made to catch them when the opportunity arises.

Wolverine characteristically occur in low densities throughout Alaska, including the Minchumina area. They seem to travel extensively in their scavenging and hunting, and may turn up almost anywhere, anytime. Wolverine take advantage of traplines by following trails and eating both baits and trapped animals. For this reason most trappers will set large traps around some of the cubbies, in hopes of catching any wolverine that starts "sharing" the catch with the trappers. Traps may also be set near any dead moose or caribou found, but because of the wolverine's sporadic occurrence, most trappers do not expend a great deal of time or effort in their pursuit. But, because wolverine pelts have brought \$125.00 to \$175.00 over the last two years, they are a welcome addition to the catch.

Otter are common residents of waterways in the Minchumina area, but like other aquatic furbearers, they are less abundant than they were 10 to 20 years ago. Otter are usually trapped when the opportunity arises in the course of running other traplines. They frequent overhanging banks, old beaver houses and bankholes, and places where thin ice or open water persist, and in such areas trappers set traps or snares for them. The low water table probably reduced their food supply as well. Trappers have told of how abundant blackfish were in lakes on the Muddy River flats during the 1950's and 1960's. Now blackfish are seldom seen in abundance. The loss of this

major food source could have adversely effected both otter and mink. Two trappers who regularly trap otter average five to six per year. ^tOther pelt values have been fairly stable; for several years they have ranged from \$20.00 to \$60.00.

Red fox are common residents of the Minchumina area. They are most numerous in and adjacent to the more open country of sloughs, willow flats, rivers and lake margins, although in early fall they seem to spend considerable time in wooded areas. At freeze-up, they begin hunting the edges of lakes, ponds and rivers, and their tracks are among the first on newly frozen areas. During winter they seem to move into the grassy sloughs and open flats, and few signs of them are found in black spruce or white spruce-birch forests. In the early days of trapping in the Minchumina area, red fox, including the silver (black), and cross color phases, were very valuable. Trappers pursued them accordingly. Slim Carlson (Thiede, et.al., 1970) mentioned that silver fox were worth up to \$350 and cross fox up to \$145-150 in the late 1920's. In 1932, Carlson received \$80 for a red fox. Not many years later the value of fox pelts declined and did not recover a great deal until 1973 when fox pelts again became worth \$25 to \$75. This general price range has persisted to the present. During the nearly 40 years of low value, fox were not much sought by trappers in the Minchumina area. Even today, with the relatively high prices, most fox are caught incidentally in sets for other animals, or in a relatively few sets made specifically for fox. The reasons for this relatively modest effort most likely are that

- (1) fox are not all that abundant, particularly in good marten habitat, and
- (2) fox are more difficult to trap than most species. As a result, the returns for effort expended are probably lower than for some other species.

The catch of fox by local trappers is quite variable, and ranges from 2 to 10 per trapper per year. One trapper who covers a territory including many sloughs and lakes catches 5 to 10 fox per year, and this is the highest catch among trappers in the Minchumina area. Known prices offered for fox ranged from \$40 to \$65 in the 1975-76 season.

From the general comments of residents, the Muddy River flats supported numerous muskrats at one time. Apparently Indians from downriver would come to the flats in spring to hunt muskrats many years ago. The story is told locally of two Indian men with ^{musk}rat hunting canoes who met a man with a boat and early vintage outboard motor. Both were going to the same lake, well known for its abundant muskrat population, and both wanted to get there first. The man with the motor took off up the river and the men with the canoes cut across the flats taking advantage of lakes and short portages. The canoeists beat the early outboarder to the muskrat lake by an hour or two! According to residents, muskrats were abundant in the 1950's but like mink, their numbers dropped sharply and rapidly. In 1975 local people said there were more muskrats than there had been for years. Muskrats were, and are, generally hunted with .22 rifles in spring, from break-up through about the first of June. After that time, pelts are too often damaged from fighting associated with the breeding season. In some years, fighting may become prevalent in May, as seemed to be the case in 1976.

Muskrat hunting occurs after seasons on other furbearers close and at a pleasant time of year. It is often a somewhat recreational pursuit, particularly when muskrats are scarce, pelt values are low, or both. In 1976, pelt values rose to \$3 to \$4 per pelt, and stimulated some interest in muskrat hunting. But at that, only two families hunted muskrats and their efforts were limited. In addition to limited winter trapping, the total catch of muskrats by one

family was about 40; the other family's catch was about 30. The carcasses were saved for human or dog food. The trapper at Birch Creek caught 40. Muskrats seemed more abundant in 1976 than they have been for years; if they continue to increase, and pelt values stay up, more interest may be stimulated in muskrats.

Although lynx are present in the Minchumina area, they do not seem to reach the extraordinary numbers reached in some other parts of Interior Alaska. Because lynx are almost exclusively dependent on snowshoe hares, it is very likely that lynx do not achieve high numbers in this area because the number of snowshoe hares is limited by the amount of suitable habitat available. Considering the extensive areas of both birch and black spruce forest, neither of which are prime snowshoe hare habitat, this is probably the case. However, snowshoe hares and lynx do experience cycles of abundance and scarcity in the Minchumina area. In most years, the abundance of lynx has been a major factor in the number of lynx caught. In 1974, 1975, and 1976, the value of lynx pelts skyrocketed, and stimulated some additional trapping effort. Still lynx catches have been relatively low; few lynx are available and those few seem to drift through the country without spending much time in any particular area. The usual lynx catch is on the order of two to three per person per year. One trapper averages five to six per year. In 1975-76, eight were taken by three Minchumina trappers. Value of these furs ranged from \$180 to about \$250.

Coyotes are present in the Minchumina area, but apparently in very low numbers. I have heard of one being caught accidentally many years ago (1950's) when trappers were issued special permits to trap wolves in spring, summer, and fall. In 1975 and 1976 I have seen tracks that almost

certainly were coyote tracks. Just how coyotes relate to other predators ecologically is a puzzle, but in substantial areas of Interior Alaska coyotes manage to survive in low numbers. In the Minchumina area they are of little importance to trappers.

Ermine (shorttailed weasel) are quite common in the Minchumina area. They can be abundant locally, but they seem to shift their winter hunting grounds frequently. A place covered by a maze of ermine tracks may not be visited again all winter. Ermine are caught incidentally in marten or mink sets, but they are seldom sought, mainly because their pelts are not very valuable.

Fishing

A reliable supply of fish has been one of the most important elements in virtually every subsistence economy in Interior Alaska. Game waxed and waned, but usually some source of fish allowed people to survive the hard times. With the advent of the fur trade, fish were needed not only for people but to feed dog teams, which enabled people to compete in the newly assimilated occupation of trapping. The prospect of a reliable supply of fish has surely been a major reason that Lake Minchumina became a trapping community. It is doubtful that the fishing ever equalled the great salmon runs of the major rivers, but to a large extent it did support a number of trappers over the years, as well as fur farming attempts and several small commercial fishing ventures. The intensive fishing to support many dog teams and several fur farms may have seriously depleted fish stocks in the '30's, but by the 1950's, fish were abundant.

The larger resident fish species in Lake Minchumina include hump-backed whitefish, broad whitefish, long-nosed sucker, northern pike, and

burbot. A small species of cisco and sculpins are also residents. Blackfish occur in nearby ponds, but I have not heard of them in the Lake. Grayling are not found in the Lake nor in its tributaries according to long-time residents.

Anadromous fish reach the Lake via the Yukon, Tanana, and Muddy Rivers, but perhaps only in small numbers, because few are caught. King salmon, dog salmon, and sheefish, or inconnu, have all been caught by nets, but not necessarily every year. Dog salmon have been caught most consistently and in greatest numbers (200 in one season is the largest catch in memory). The destination of these species is uncertain, but king and dog salmon have been reported in Hot Slough (U.S. Department of Interior, 197⁴3), a tributary to the Foraker River.

The most numerous large resident species are humpbacked and broad whitefish. These are the fish that have mainly supported subsistence and commercial fishing.

The particulars of their habits in this area are not well known, but it is known that at least some part of the population of humpbacks migrate up the tributaries in spring or early summer and return in fall. Also, some broad whitefish apparently go down the Muddy River in spring or summer because many were seen entering the Lake in October and November, 1976. Numbers of both species are caught all summer so not all of either species leave the Lake.

Both species spawn in fall, apparently in shallow areas of the Lake. Humpbacked whitefish seem to start spawning earlier (September) and also spawn later (December). Broad whitefish seem to spawn mainly in October and early November.

The other large species are caught incidental to catching whitefish; as a result, perhaps even less is known of their habits. One resident said that suckers come up the Muddy River in fall and they do seem to be abundant near the Lake's outlet in October and early November. But the number caught in 1976 did not approach the number of broad whitefish caught at the same time. ~~Suckers apparently spawn in spring. I caught suckers in spawning condition in April.~~ *Suckers in spawning condition were caught in April.*

Northern pike spawn in spring. Based on information from other areas, they most likely move to adjacent lakes and sloughs to spawn as soon as high water allows their passage. In some years, before it became so low, quite a few pike were netted in Old Woman Creek in spring.

Burbot probably do not leave the Lake for spawning or summer feeding. They spawn in early February (personal data, and Chen, 1969).

Fishing for subsistence or commercial use has been done exclusively with gill nets for some time. Several years ago a wier, or trap, was used on the Muddy River but it was a complete failure for unknown reasons.

In the ice free season, gill nets are usually attached to a tree or bush on shore and set out perpendicular to the beach. At the far end, a large rock, or some other anchor, is attached to keep the net in place. A large can or bottle may be attached to the float (top) line so that boaters will be forewarned of the net. The nets are usually checked every day or two. After freeze-up, nets are set under the ice in very similar locations.

The only people who fish regularly in spring, summer, and early fall, are those who have sled dogs to feed. Other people may set a net for a few days to two or three weeks to obtain enough fish for eating, to smoke for later consumption, to rot for trapping bait, or to use for fertilizer. Disposition of the catch by dog owners varies. A small catch may all be

cooked for one to two days' dog food. If a large catch is made, fish in excess of the immediate feeding needs are cut for drying and the entrails are cooked for the dogs. If the fisherman wants to dry fish for winter dog food, he will usually put out several nets so that his catch hopefully will far exceed his daily needs. If the fish are to be dried, the nets will usually be checked daily, because fish that die in the net soon begin to decompose and do not cure very well when hung to dry. Fish are sometimes put in a barrel to rot for later use as garden fertilizer.

In recent years, very few fish have been dried, mainly because until 1975 there were only one or two working dog teams. In 1975 and 1976, two families dried in total about 600 and 750 fish respectively. In former years, one family dried 3,000 fish in a particularly good year.

The most common method of storing fish for winter is to fish heavily in fall and early winter, and store the catch either as partly rotted, somewhat dried fish, or fresh frozen after freezing temperatures consistently prevail. The influx of whitefish and their concentration during spawning makes fall fishing more efficient and freeze-up soon eliminates storage problems. An added advantage is that whitefish are much fatter in fall than during summer.

The amount of fish needed depends on whether or not dogs are fed, how many dogs are fed, and upon what other dog foods are available. One trapper estimated he needed 200 fish per dog to keep them over the winter, but at that time, he also bought dried salmon, and most of the beaver he and his wife caught were fed to their dogs. By his estimate, he would have needed 550 to 800 pounds of dried salmon, plus 1800 fresh fish, plus about 50 beaver carcasses to keep his nine-dog team going from October through June.

Another trapper with seven to eight dogs estimated his winter needs at about 3000 fish, plus other possible food sources, such as beaver.

In my own case, we estimated that we needed about 3000 fish to keep 13 dogs from November 1 through mid-April, when we could anticipate good fishing again. In 1975-76, our total catch for the year was 4,284 fish, *but* ^{our} Our winter fish supply was inadequate. To meet the dog food needs, we (1) fished all winter (which contributed very little after December), (2) fed carcasses of all furbearers we caught plus about 90 marten carcasses given to us by another trapper, and (3) bought 40 beaver carcasses from a local trapper. In addition, we normally cooked some oats with the other dog food; we used about 300 pounds of oat groats in one year. Various scraps, trimmings and some commercial dog food were also used. We estimate that about 5000 fish are needed to keep roughly a dozen dogs for a year.

Freshwater fish does not provide adequate fat for working dogs. Dried salmon may, because of its higher fat content. In order to keep working dogs in good condition, a freshwater fish diet must be supplemented with fat. Tallow is often purchased for this purpose, although scraps from moose, bear or beef and pork are also used. Beaver carcasses are usually quite fat and dogs do particularly well on them.

The following summary combines records and estimates fish taken by Minchumina residents and the primary uses made of them. About 75 to 90% of the catch was whitefish.

In fall 1976, fishing in some of the usual locations was poor, but in other locations it was good. While the catches in recent years are undoubtedly lower than when numerous dog teams were kept, there may be some question of what the system can support if the lower water table has reduced feeding areas in Lake Minchumina and in connected water bodies.

Fish Caught for Domestic Use, June 1975-December 1976
Lake Minchumina, Alaska

<u>Family</u>	June '75 -June '76	<u>Catch</u> June '76 -Dec. '76	<u>Uses</u>
1.	3000	1500	dog food, table use, bait, fertilizer
2.	4284	3500	dog food, table use (150-200 for summer use), bait, fertilizer
3.	150	0	table use, bait
4.	100	100	table use, dog food
5.	500*	500*	dog food, table use
6.	500*	1200*	dog food, table use, fertilizer
7.	100*	100*	table use
	<u>8634*</u>	<u>6900*</u>	

*estimate by author

A very rough estimation suggests that in the 1950's and possibly the early 1960's, the minimum combined subsistence and commercial catch may have ranged from 12,000 to 20,000 fish per year, or roughly twice the annual catch of the last year or two. At least one resident expressed the opinion that the lake was not overfished during those earlier years. If that view is correct, it is hard to accept that present fishing rates are excessive. But if sufficient important fish habitat was eliminated or access to it was lost by the drop in water levels, it may be that present fishing rates are too high.

As a source of food for both humans and dogs, the Lake Minchumina fishery is still very important to residents, and fishing success in the future will surely be watched with great interest.

Logging, firewood and other wood uses

All of the permanent residences at Lake Minchumina are built mainly of logs cut nearby. Finished lumber, windows, metal roofing and other manufactured components have been incorporated to varying degrees. Trap-line cabins are made of Native materials almost exclusively. Out-buildings and doghouses are often made of poles or logs. The first frame private residence was begun in fall, 1976 as a replacement for an older log home. Thus, the use of local building material is an important part of the local economy.

Much of the land near the Lake will not support white spruce. Most of the land that will was burned years ago and now supports mainly paper birch. The result is that there are only a few relatively small areas with spruce suitable for house logs. These areas are marked on the resource map. Building

logs are a highly important local resource mainly because of the high cost of obtaining other materials.

The importance of local wood for roof poles, cribbing, home-made lumber for various purposes, and various other building uses should be emphasized. In many cases it's a question of using local material or doing without.

In the case of trapline cabins, there is no reasonable alternative to the use of materials at hand. A number of the older cabins on various traplines are in need of repair or replacement if the lines continue to be used.

Only one residence is not heated exclusively with wood, and several homes have a wood burning cook stove in addition to a wood burning heater. The amount of wood burned varies depending on the size of the home, how well it is constructed, and in some cases, how much of the time the home is occupied. Some residents are gone part of the year. Homes occupied most or all of the year require from 5 to 10 cords of wood. Based on several interviews and estimates of fuel requirements for the remaining homes, I would estimate that 40 to 50 cords of wood are currently used each year by Minchumina residents. For most residents there is no reasonable alternative to the use of wood for heating. Wood cutting areas are usually within one to two miles of the homes, and are shown in a generalized way on the resource map.

A surprising aspect of the use of wood for heat is that, although woodcutting has gone on for 60 years, the casual visitor is not likely to notice any evidence of it except the impressive woodpiles.

Two residents use diamond willow, burls from birch and cottonwood trees, and birch bark extensively for making furniture and other hand crafted items. Most of these items are sold. Other residents occasionally make similar items for their own use. Diamond willow is collected along the Muddy River

as far as 45 miles from Lake Minchumina. Burls and bark are collected wherever they are found.

Local birch is most often used for dogsleds or snow-go sleds, but hickory is sometimes imported. Ironbark and walnut have been used for sledrunner shoes in the past, as has birch. Plastic runner shoes are becoming more popular because they have relatively little friction. Iron or steel shoes are often used spring and fall, and even all winter if snow-gos are used.

Small Game and Waterfowl

The small game species most important for local use are snowshoe hare, spruce grouse and ruffed grouse, and willow ptarmigan. Sharp-tailed grouse are present in the flats, but are seldom seen except around the confluence of the Muddy River and Birch Creek.

Snowshoe hares are an important food source in most parts of the bush where they are abundant. Although I have seen hare tracks in many different places, and two very small areas on the Muddy River flats had been heavily used by hares, in general they are low in numbers. They seem less numerous than in 1975-76. Few are being taken in the Minchumina area; in 1975-76, children in one family caught six, mostly in snares; another family took a similar or larger number by snaring and shooting.

Grouse of various species and ptarmigan are usually taken incidentally during moose hunting or trapping, but a special effort may be put forth, particularly if the birds are abundant. As with hares, grouse and ptarmigan are usually taken incidentally to other activities. The ubiquitous .22 rifle is most commonly used for hunting grouse and ptarmigan, although various

people are familiar with techniques for snaring or netting the birds.

The extent to which grouse and ptarmigan are used depends on their abundance, distribution, and on the activities of the people involved. Populations of both spruce grouse and ruffed grouse are low, but seem to have increased compared to 1975-76. I do not have any information on relative abundance of sharp-tailed grouse. Willow ptarmigan may be at low to moderate levels, and also seem more numerous than in 1975-76. ^PWaterfowl are usually hunted in conjunction with other activities but special effort may be made if moose hunting is unsuccessful. The most common ducks are: American widgeon, green-winged teal, pintail and mallard. In addition, shoveller, scaup, bufflehead, common goldeneye, whitewinged scoter, and common and red-breasted mergansers are present in fall. Oldsquaws, redheads and canvasbacks have been seen in spring.

Whitefronted geese and Canada geese are both common in the Minchumina area, but whitefronts seem more numerous. Both species nest in the area. Geese do not seem to be hunted much by residents, partly because most have left by seasons' opening (especially whitefronts) and partly because they are more difficult to hunt than ducks or grouse. In hunting season, the main concern is to get a moose, and until that is accomplished, there is little inclination to spend a lot of time on lesser species.

In general, residents of Lake Minchumina who hunt view small game and waterfowl as welcome, but usually not substantial, additions to their food supply unless moose hunting is unsuccessful and processed food is economically unavailable. In recent years, at least, this has seldom been the case.

As a result, the use of small game and waterfowl is limited. The following table lists estimates of annual kill of small game and waterfowl

for three families most actively engaged in hunting and trapping.

Family	Grouse	Ptarmigan	Ducks	Geese
1	20-30	15-20	20-35	5-6
2	10	5	10	-
3	15-20	5	25-35	1

Although these catches do not represent intense use, they do contribute to the amount and variety of available food. Two of the three families expressed the view that small game and waterfowl were important food sources.

Berries, Gardens and Wild Greens

The most abundant and commonly used berry species at Lake Minchumina are blueberry, lingonberries (low-bush cranberry), high-bush cranberry and raspberry. Salmonberry and bog-cranberry are common in many bog areas but are seldom picked. Crowberry is not available in quantity.

Blueberries and lingonberries are picked in greatest quantity, while raspberries are highly prized but are less widespread and less abundant. Berries are principally used for jam or jelly, relishes, and various desserts, including the traditional "Eskimo ice cream". The quantity picked depends first of all on abundance of the particular species, but also on the personal preferences and the degree to which berries are relied upon as a substitute for commercially produced fruit and fruit products.

In 1975, blueberries were abundant. One family picked about 14 gallons, another family picked 8 gallons, two more families picked between 5 and 10 gallons. Two other families picked an unknown but substantial quantity. Lingonberries were scarce; one family picked 2½ gallons.

In 1976, lingenberries were abundant, but blueberries were scarce. Because blueberries are generally preferred, most people picked fewer berries. Four families picked between 5 and 10 gallons of blueberries and lingenberries. A fifth family picked 30 gallons of lingenberries, but picked no blueberries. The latter family (my own) uses berries in place of commercially grown fruit and fruit products to a considerable extent.

Raspberries are sought by almost everyone at the Lake, but the quantity taken by most families probably does not exceed 2 to 3 gallons. However, one family pick^{ed} considerably more 6 to 8 gallons.

High-bush cranberries are picked in years when they are abundant; but because the quantity available varies, and because there are few good "patches" near the Lake, this species is often ignored in favor of blueberries or lingenberries.

Relatively small amounts of rose hips are picked by a few families.

41² The favored berry picking areas are generally close to access by boat, and to a lesser extent by road or trail as in the vicinity of the airfield.

Lowlands adjacent to the Lake and to the Muddy River for 20-30 miles downstream are commonly used for picking blueberries and lingonberries. Lingonberries are also picked in the subalpine areas of hills surrounding the Lake. In 1976, such areas had a particularly lush crop. Raspberries and rosehips are found along the Lake's beaches and in disturbed areas such as roadsides, the airfield clearing, and old cabin sites. The favored place for high-bush cranberries is on the south-facing slope at the outlet of the Lake.

Berries are preserved by freezing (several people have freezer facilities), making jam or jelly, and by packing in sugar and later freezing. In the case of lingonberries picked later in fall, berries are often stored in a cool place and allowed to freeze after outside temperatures are constantly below thawing.

Gardening is an important means of obtaining food at Lake Minchumina. Six families raise gardens that vary in size in proportion to the family size. A seventh family planted a large garden, but moved away for an indefinite period before harvest time. A wide variety of vegetables are raised, but the emphasis is on storage crops such as potatoes, carrots, and cabbage. Those families with freezer facilities also freeze green vegetables, and some canning and pickling is also done.

I did not attempt to document garden harvests, but it is clear that a substantial proportion of vegetables consumed are raised locally. In the case of my own family, nearly all of our vegetables are home grown. This

amounts to from 700 to 900 pounds of potatoes, up to 300 pounds of carrots, 100 to 150 pounds of cabbage, and lesser amounts of beets, turnips, rutabagas, celery, broccoli, peas, other vegetables and rhubarb. Our garden measures approximately 90'x40' and is one of the larger gardens. One family maintains a flock of chickens for both egg and meat production. In the past, other families have kept chickens and goats from time to time.

I have not inquired about use of wild greens. My family uses young willow leaves and young fireweed almost daily in spring and early summer before the first garden produce is available. We also use lambsquarter regularly.

The Importance of Subsistence Use at Lake Minchumina

To many people, the term "subsistence life-style" often suggests living off the land, to a variable extent, within the cultural context of one of the Alaska Native cultures. Certainly, in many of Alaska's rural areas, this conception of subsistence life-style is accurate. However, the term "subsistence life-style" is more inclusive than that, for in many cases people of other cultural origins have chosen to live as hunters, trappers, and fishermen, more or less after the fashion of Alaska Natives.

The interchange of material goods and of the desire for them has contributed to such convergence of material culture among rural Natives and non-Natives that the type of activity pursued, the equipment used, and use of resources obtained are very similar, if not indistinguishable. Thus, it is not difficult to find an Alaskan Native and an Alaskan non-Native living in a rural area doing basically the same kind of work, with the same kind of equipment, in order to make a similar living. It seems to me that there

is a good deal of convergence, too, in the perspectives of Native and non-Native subsistence users.

Lake Minchumina is a place where subsistence life-styles are pursued, but not in the context of an Alaskan Native culture. Although several Alaskan Native people live at the Lake, none are related to earlier Indian residents of the area, nor to each other. Thus, there is not a prevailing single Native culture in the area as there is, for example, at Nikolai and Telida.

Although most people in the Minchumina area use some local resources, the extent of dependence, or use, varies greatly. All residents have income from some source besides subsistence use. There are people who are retired, people who are self-employed, either part-time or full-time, and people who work seasonally or part-time. It is interesting that 11 of the adults have lived at Minchumina 20 years or more, while 6 to 8 have lived there for 1 to 6 years.

With respect to trapping, two families and one single person derive a substantial proportion of their income from trapping. One additional family and one single person derive a moderate proportion of their income from trapping. The remaining five families and one single person derive a small proportion of their income, or no income, from trapping. One family may increase their trapping effort next year. Some furs are used for personal clothing by those who trap.

Direct resource use is almost as varied. Most residents annually hunt moose, but the extent to which they depend on moose for meat is quite variable. In general, the smaller families and single people seem able to get by without a moose by purchasing meat and perhaps using more small game, waterfowl,

and fish. However, they may use less meat also. For families with several children, the lack of moose meat would be a serious matter, both in terms of available meat for consumption, and economically. For example, in our present economic regime, I would find it very difficult to obtain sufficient meat from small game and waterfowl if our family of five did not get a moose, and I could not be assured of sufficient continuing employment to plan on regularly purchasing meat.

The degree of dependence on gardens is somewhat similar. It is possible to live at Lake Minchumina without raising a garden, and several people do so. However, if one is on a limited income, has a family, or both, food produced by gardening makes a significant contribution. In my own case, nearly all of our family's vegetables are raised at home. Although gardens are not a traditional Alaskan subsistence activity, where it is feasible to raise them, they are compatible and complimentary means of increasing the food supply for people living in the bush. At Lake Minchumina, they are of considerable importance to a large proportion of the population.

In terms of building materials and fuel, there is more uniformity of use among Minchumina residents. I mentioned earlier that with one exception, the basic structure of all residences is log work. These two commodities, building materials and fuel, obligate a substantial part of most budgets in a conventional life-style. If purchased in the bush, the costs would be prohibitive. Hence the numerous government-sponsored housing assistance programs in rural Alaska.

If various elements of subsistence use are isolated for examination, it is possible to conclude that each element does not contribute a great deal to the user's support, particularly in terms of dollar value. But, taken together,

the various elements of subsistence use provide the means to support oneself in a rural area in spite of fluctuating economic circumstances. Most people, however, would agree that there are easier ways to make a living. Table ___ summarizes my estimate of resource dependence and use of families of Lake Minchumina, based on information obtained through interviews and observation.

I asked three families who are, or have been, trapping, hunting and fishing regularly, how important subsistence use was to them economically, and how important a subsistence life-style was to them. All responded first, that no one at Lake Minchumina lives on a truly subsistence basis, i.e. without supplementary employment. One man stated that only one or two people had done so in the last 30 years or so, at least for any length of time. On the question of economics, one man stated that without subsistence use, including trapping, hunting, and gathering, his family would not be able to live here. As to the life-style, he stated that his family preferred their present life-style, but that its economic limitations make it a poor risk for making a living in the long run.

In the second family, the man stated that although they are not now dependent on subsistence use for their livelihood, he and his wife have spent most of their lives in the woods, and he would like to see that opportunity remain, for others as well as themselves. The third couple questioned stated that, overall, subsistence use was important to them, and that although they could make a living some other way, subsistence use enabled them to continue their present subsistence life-style, which, they feel, is the most important consideration. They felt, too, that the opportunity to pursue a subsistence life-style is, in many respects, a privilege.

As a subsistence user in the Lake Minchumina area, I would add these comments. With the exception of people with substantial financial support, it would be very difficult for a family to support themselves in this area without using local resources. If one chooses to live, and stay, in an area like Minchumina, there are very definite limitations on available cash income [other than from trapping]. As a result, use of local resources of various kinds is virtually a necessity. We estimate that one-half to three-fourths of a family's basic daily needs for food, shelter and fuel can be obtained directly from local resources. Cash income from trapping, pensions, investments or employment is required for various additional immediate needs and retirement security. Thus, in our view, unless one is willing to commit a substantial period of time to wage employment away from his residence, local resource use seems a necessity to the present day Minchumina life-style. In our view, the opportunity to pursue a unique life-style is of first importance, for ourselves, but also as an option for others. We feel that subsistence living offers a rare opportunity to experience some of the basic satisfactions in life, an opportunity which is becoming harder to find in our society. It seems to us important to sustain and encourage the option of this life-style, just as society attempts to retain a working knowledge of many other arts or crafts which, to a large extent, have been bypassed by 20th century technology.

There is concern among Minchumina residents that too much resource use would be detrimental to wildlife and habitat. One couple would prefer to see limits to consumptive resource use through Park extension and limiting trappers to those presently using the area. Another couple is more concerned with protection of wildlife in the immediate vicinity of the Lake,

Table ____ Resource Dependency At
Lake Minchumina, Alaska, 1975-1976

Household	Number of People	Number of Dogs	Number of Snowmachines	Resource Dependency ³	Resource Use ⁴
1 ¹	1	0	0	L	B,F,G,W
2	2	5	1	L	B,F,G,W
3	2	0	1	L	L,W
4	1	0	2	M	F,H,L,T,V
5	4	1	2	E	B,F,G,H,L,T,W
6 ²	1	0	1	L	L,W
7 ²	2	2	1	M	B,F,H,L,T,W
8	2	0	1	L	B,G,L,W
9	2	6	2	E	B,F,G,H,L,T,W
10 ²	5	5	2	M	B,F,G,H,L,T,W
11	5	13	0	E	B,F,G,H,T,W
Totals:	27	32	13		

1. Short-Term Resident (76-77)

2. Presently Part-Time Resident

3 A Subjective Assessment of Relative Dependence on Local Resources
(L=Little, M=Moderate, E=Extensive)

4. Types of Resource Use:

B=Berries, F=Fish, G=Garden, H=Hunting, L=Logs, T=Trapping, W=Wood

so that residents and tourists might have more opportunity to view wildlife, wildlife habitat, and ^{pristine} related human activities, but they did not suggest new forms of management for the area.

Among Lake Minchumina residents, there is a great affection for the area, and a common concern for maintaining ^a the land, wildlife and individual life-styles. However, there is considerable diversity in dependence on local resources, and in opinions regarding how best to retain the values that have attracted and held those living here.

Nikolai Area

Nikolai lies well west of the proposed north extension of Mt. McKinley National Park. In past times, people of this community ranged widely, and perhaps some of them regularly reached the proposed extension. In the 1930's and into the 1940's, people still occasionally walked to the mountains and hunted sheep, caribou or moose. They dried the meat, and either cached it for winter, carried it back on foot, or floated it back downstream in skin boats. This traditional hunting pattern, reported by Hosley (1961) and confirmed by Ray Collins (vive voce), Antone Pitka (vive voce) and other residents of Nikolai, regularly carried Nikolai people east to the Tonzona River in the foothills of the Alaska Range. Antone Pitka told of one occasion years ago when Carl Sesui (now deceased) of Telida and Miska Deaphon of Nikolai travelled on foot into, or very near, what is now McKinley Park, hunted moose, and floated down the Swift Fork to Telida (the Swift Fork is locally known in Nikolai, Telida and Minchumina as the McKinley Fork).

An accumulation of changes in various aspects of life has eliminated the need for the late summer-fall hunting trips and, of course, materially affected other life patterns as well. The overall effect of these changes has been to reduce the area from which resources have been taken. However, the advent of dog teams in the early 1900's and outboard motors and later snow machines, has countered this effect, as has the stimulus of the fur trade.

With dog teams, traplines were often extended to the foothills of the Alaska Range. Moose, caribou or sheep were sometimes hunted as an alternate activity when these lines were run. Extensive traplines were also run on the flats surrounding Nikolai.

Snow machines eventually supplanted dog teams. For a time, the long traplines were unused, perhaps partly because of difficulties with the early machines. Now the long traplines are coming back into use, with the snow machines being the sole means of transportation. Basically the same family trapping areas developed over years of prior use are now being used, although in most cases use is not as extensive as it was at the height of trapping by dog team.

The trails involved in trapping probably represent the geographically most extensive form of resource use in the Nikolai area. The attached map shows most of the major trails in the Nikolai area, but does not show many of the trails to and in the foothills, nor does it show many connecting trails or new trails developed very recently. For example, one of the longest traplines presently being used extends to a cabin on Pingston Creek at the base of the foothills, but is not shown on the map.

The Athabascan place names on the map, although not a complete list of local names, indicate the high degree of local knowledge of the resource area surrounding Nikolai. I am indebted to Ray Collins of McGrath (who was instrumental in gathering and recording the map information) and to the village of Nikolai for the opportunity to copy this map.

Because recent resource use by Nikolai residents seldom, if ever, involved any of the proposed McKinley Park extensions, I have not attempted to detail Nikolai resource use. However, areas traditionally used by Nikolai people interlock with areas traditionally used by Telida residents. Thus, Telida's resource use alternatives are in part limited by existing Nikolai resource use. Although there is no apparent conflict regarding use areas, the fact remains that there is very little available unappropriated resource area to the west

of Telida. If Telida resource use were displaced or limited by the proposed McKinley Park extension, there might be some difficulty in finding adequate alternative areas.

Although Nikolai residents recognized that the proposed McKinley Park extension would have little direct impact on them, discussion of the extension was of ^{no} little concern to Nikolai people. ^{One} Another man was concerned that gradual encroachment ^{by Federal reserves} might continue which eventually would have direct impact. Two men expressed concern over any action which would encourage an increase in the number of wolves; they viewed wolves as competition for moose and caribou. Moose are not abundant in the Nikolai area, and no caribou have been seen this year, so meat is relatively scarce. Another man pointed out that even with food stamps, it is impossible to replace moose meat because of the high cost of domestic meat.

Other concerns included aircraft-borne sport hunters in competition with local people for moose, and the possibility that moose taken by guided sport hunters in the foothills might otherwise be available later for local hunters. It was also noted that restrictive seasons to discourage sport hunters make it difficult for local residents to legally obtain a meat supply when it is needed. As pointed out above, it is still needed on virtually a year-around basis because an economic alternative is not available.

Telida Area

Telida is a small (24-26 population) village on the south bank of the Swift Fork, Kuskokwim River, just southwest of Telida Mountain, about 50 miles southwest of Lake Minchumina. Telida is rather isolated, especially in summer. McGrath, 100 air miles southwest, is the nearest trade center. By

river, it is about 180 miles. Medfra, about 100 river miles away, was once the trade center for the upper Kuskokwim in general, but is no longer. Telida is 45 miles northeast of Nikolai by winter trail, but 130 river miles distant. Except for two teachers, the entire population of Telida is Athapaskan, variously related to the people of Nikolai.

Telida is an old village. It existed at the time of Herron's expedition (1899) although not in its present location. Its present location was chosen for its elevation above the river and its proximity to Upper and Lower Telida Lakes, which support a large summer population of "tilaya", or "lake whitefish". "Telida" literally translated means "whitefish place" (Ray Collins, vive voce, and Collins and Collins, 1966).

Among the population of Telida are older people who lived in the Telida area all or most of their life, middle-aged people who may have previously lived there, and young adults who lived in Telida as children, moved to Nikolai and sometimes beyond for school and have moved back with their own families to trap the old family traplines. One family has lived at the mouth of the Swift Fork (locally known as McKinley Fork) year-round for many years. Their adult son now lives principally at Telida. Through previous residence, parents, or by marriage, all Telida residents have some connection with earlier occupancy of the Telida area.

Telida is essentially at the head of navigation on the Swift Fork, Kuskokwim River. Alt (1972) noted that the river is unnavigable (for a well-equipped riverboat) above the mouth of Highpower Creek, which is 17 km. upstream from Telida. Highpower Creek is navigable for some distance, and in earlier times was ascended by hunters, trappers, and prospectors. The Swift Fork is thus the only summer surface access to Telida.

In winter the trail to Nikolai is usually kept open by occasional use, but recently the trail to Minchumina has seldom been kept open even though traplines along the winter trail from the respective communities may only lack 10 to 20 miles of meeting. The trail to the mouth of the Swift Fork where one family lives is currently used regularly. When mail was carried from Nenana to McGrath by dog team, the trail to Minchumina facilitated traffic between Telida and Minchumina. Contact between the two communities was common, but not frequent in the 1940's, and became rare later. The small airstrip, cleared by hand by Carl Sesui, is now the most important link to goods, services, and employment opportunities.

The Area

The land and habitat surrounding Telida is very similar to the flats lying south of Lake Minchumina. Stands of closed spruce-hardwood forest (Viereck and Little 1971) occur along the Swift Fork, Highpower Creek, and in a few other favorable locations, but are not abundant. Broad flats punctuated by occasional low hills extend in all directions. Telida Mountain dominates the landscape, and is visible from Lake Minchumina. On much of the land immediately surrounding Telida, treeless bogs and shrub thickets (Viereck and Little 1971) prevail. Numerous creeks and sloughs which meander through the flats appear as a bewildering maze, particularly west of Telida. Cartographers were apparently equally bewildered; some streams on the map drain into both the Swift Fork and the Slow Fork!

Some miles to the north, south and east, open, low-growing spruce forest (Viereck and Little 1971) dominates; to the east of Telida it is more or less continuous with similar habitat south of Lake Minchumina.

Large Mammalsa. Moose

In general, the Telida area is not particularly rich in natural resources. Although some of the area is reasonably good moose habitat, moose numbers are apparently low, as they are in many parts of Interior Alaska. Access for fall moose hunting is basically limited to the Swift Fork and Highpower Creek, unless an extended trip is made to the North Fork. Three moose were taken in fall 1976. A family may eat two to four moose per year, and there are the equivalent of four to six families at Telida. Additional moose may be taken later in the year, but as a Nikolai veteran of the resulting dilemma said, "you either are short of meat or break the law".

According to Ray Collins of McGrath (vive voce), ^{Gleeman} ~~Getman~~ Esai of Nikolai told him that before 1900 moose were very scarce in the Nikolai-Telida area. When Esai was a boy, the first moose in memory was shot shortly after the turn of the century. People were unfamiliar with the animal, to the point of being wary about eating the meat. But, it was finally eaten. As time passed, moose increased and have become the most important source of meat, in place of caribou.

Ray Collins (vive voce) noted that moose are still intensively used as food. The head is usually used to make soup (the brains are used in tanning moosehide). Various internal organs are also used regularly for food, including heart, liver, stomach, some intestines, kidneys, and visceral fat. Marrow from the lower leg bones and jaw bones is often obtained by roasting and cracking these bones.

Locally tanned moose hide and babiche (rawhide lacing) are still important commodities, although fewer hides are now processed than in earlier

times. For both purposes, moose hide is preferred to caribou hide which is thinner, less durable, and sometimes weakened by warble fly larva scars. Tanned moose hides are used for gloves, mittens, winter boots (mukluks), slippers, purses, scissor cases, and beaded jewelry, all of which may be used at home or may be sold. Demand for the home-made items, and for tanned hides, has far outstripped supply. At Telida, several women make moose hide items for family use and for sale. Skin sewing is one of the two cash-producing local activities; the other is trapping.

Good moosehide babiche is also in great demand among dog sled builders and others; but very little reaches any market. Most babiche apparently is used locally in building or repairing dog sleds, snowmachine sleds, and snowshoes. However, fewer dog sleds and snowshoes are being built. The conventional dog sled is being replaced by commercial and home-made sleds and sledges of various designs as a result of the complete change from dogs to snowmachines. Commercial snowshoes are also in common use. Because bull moose hides are too thick for good babiche, increasingly restrictive moose seasons and bag limits can reduce the supply of hides for babiche, as well as reduce the opportunity to legally obtain meat when it is needed.

Sinew has been largely displaced by nylon dental floss as thread for sewing skins, but is still used occasionally to represent babiche in model dogsleds and other models which are sometimes made for sale.

In summary, moose are the most important single source of food, and the most important local source of apparel for both domestic use and for sale. The number of moose killed has been quite variable, and is affected by the basic consideration of moose abundance, but also by such factors as preoccupation with wage employment, gas shortages, equipment breakdowns, and

perhaps to some degree, food stamps and other subsidies which reduce need for moose.

b. Caribou

Caribou were abundant from the late 1800's or early 1900's through the early 1930's (Ray Collins, McGrath, vive voce and Hosley 1966). After that time, caribou became scarce in the Nikolai area and perhaps in the Telida area also, although caribou were available near traplines which extended east toward Lake Minchumina in the 1930's and '40's. Whatever the circumstances were, the emphasis shifted to moose; few caribou were taken in the Telida and Nikolai areas until the early to mid-1960's when they again frequented those areas in modest numbers.

The assumption that caribou wintering in the Minchumina area and further east are part of the McKinley herd is probably correct. Further west, possibly in the Telida area and almost certainly in the Nikolai area, the herd identity of wintering caribou is questionable. Observations by the Alaska Department of Fish and Game and others suggest that there are small numbers of caribou which spend the snowfree season scattered along the foothills west of Mt. McKinley Park, and winter on the flats between the Alaska Range and the Kuskokwim River. I do not think anyone now knows if these scattered caribou are associated with a recognized herd such as the McKinley herd on the east, or the Mulchatna herd to the west and southwest. Caribou, apparently from the latter herd, have been observed in the Rainy Pass area of the Alaska Range in spring (Hemming, 1971), and on the Big River flats between McGrath and Nikolai in winter (pers. obs.).

Caribou have seldom been seen in the Telida area in recent years, and none had been seen or taken in the current season, through mid-January 1977. Considering recent difficulties in obtaining moose, any opportunity to take

caribou would surely be important to Telida residents. In March 1977, caribou were reported to be around the lakes southwest of Minchumina, between Minchumina and Telida. I do not know if people from Telida hunted them.

Caribou are desired for food and for hides. The hides are mainly used with the hair left on for sleeping mats and for making winter boot tops.

c. Grizzly and Black Bear

Grizzly bears are not common, but do occur in the Telida area. In general, they are not sought for food or for the hides, and are killed only when some potentially serious confrontation arises.

Black bears are more common than grizzlies, although their numbers apparently fluctuate as they do in other areas. However, black bears are not sought for food or for the hides either. In some years when black bears are numerous they can be a hazard around the village and in camps. At such times, bears are most likely to be shot.

d. Wolves

Wolves occur in the Telida area, but they are not abundant at present. Although wolf hides are used for ruffs and some other apparel, they are taken opportunistically. None have been taken in the current season (January, 1977).

Furbearers

The most important furbearers in the Telida area from the trappers' standpoint are marten and beaver. The importance of these species is largely a reflection of the kind and amount of habitat available. The market value of furs and the difficulty of catching some species are also important considerations. Thus, although circumstances are not identical to the Minchumina area, there is a very close parallel in trapping patterns

and the reasons for them in the two areas. For example, market value of mink pelts has been low, and very little effort has been expended to catch them.

Most of the trails shown on the attached resource map are basically marten traplines, but in several cases they are regular travel routes as well. Where trails traverse lakes and sloughs, mink otter and beaver may also be trapped.

In Telida there are four adults and two teenagers trapping. Three of the adults were trapping more or less full time, while the fourth adult and the teenagers trapped less intensively. Marten trapping was relatively good in the 1976-77 season, with catches ranging from 20 or 30 up to 98 by mid-January. The highest catch was made on the trails southeast from Telida into prime marten habitat of the Minchumina area, east of the Swift Fork River. One Telida trapper was troubled by fox eating trapped marten along his line and by snowmachine breakdowns. At Telida, as at Lake Minchumina, 100 marten is considered a good season's catch for a full-time trapper.

All of the Telida traplines shown on the resources map end in close proximity to trapping areas used or claimed by other trappers. West of Telida, the principal trapline trail is also the travel route to Nikolai, and a Nikolai family's trapping area meets the Telida trapline near the East Fork. The trail north connects Telida with the trapping area of the family living at the mouth of the Swift Fork. That family's trapping area is flanked on three sides by other trapping areas, and on the north side by the Kuskokwim Mountains.

To the east of Telida, one man traps along the winter trail and part of the older dog team mail trail to Minchumina. His trapping area almost

meets a Minchumina trapper's area. To the southeast, one man traps part of his father's (now deceased) trapline, and is within 4-6 miles of another Minchumina trapper's cabin. In the last two cases, the young men, who are brothers, are trapping parts of the area formerly trapped by their father in the 1940's and early 1950's. Both brothers went to school in Nikolai and elsewhere, but have chosen to live where their family formerly lived.

Finally, one trapper uses the trapline extending south on the winter trail (an old "cat" trail) formerly trapped by his father-in-law who has died. In this case also, the Telida trapline meets a Minchumina trapline, in the vicinity of Giles Lake on the upper Swift Fork. This "cat" trail is also joined by a trapline trail from Nikolai via Dennis Creek. The eastern part of the Dennis Creek trail has not been used recently.

Thus, the principal trapping areas for Telida are circumscribed by adjacent traplines or trapping areas. Although these Telida traplines are basically for marten, in principle the same circumstances apply to trapping for other species. Within the radius from Telida described by the existing traplines there is the potential for developing additional traplines for some species. This might be successful for marten since the appropriate habitat is present, and unless traplines were very closely spaced, the marten numbers could absorb additional trapping pressure. However, few additional trapping areas for beaver could be developed without the possibility of overtrapping.

It is interesting that at Telida and Nikolai, pole sets are preferred for marten, while at Minchumina cubby sets are used almost exclusively.

Although some beaver trapping was in progress at Telida in January, beaver trapping is usually done in February and March after most other seasons have closed and weather has moderated. The swampy area west of Telida, Red Slough downstream from Telida, and lakes east of Telida in the Sprucefish Lake-Otter Lake vicinity are all important beaver trapping areas. Because distribution of beaver varies from year to year, and because in most cases numerous ponds and sloughs provide open travel routes, regular trails are not usually maintained as in marten trapping. However, the same routes may be covered in successive years if beaver are present. Normally only two beaver are taken from each house in an effort to conserve beaver in the trapping area.

The legal limit on beaver in the Telida area is 25. If beaver are numerous, usually additional members of the family assist with trapping in order to claim an additional limit. The beaver catch has varied in the past, partly because the numbers of active trappers at Telida has varied, but also because trapping effort in general is dictated more by immediate financial need than in some other areas. This latter point will be discussed more fully later on.

The number of beaver sealed by Telida trappers as recorded by the Alaska Department of Fish and Game is given in Table ___; the data includes beaver taken by the family at the mouth of the Swift Fork, who have been the most consistently active trappers in the area.

Lynx, mink, otter, fox, wolverine, and wolf are trapped in the Telida area. Because most of the existing traplines are principally marten lines, and because until late 1976 mink prices were quite low, very little effort has been made to trap mink. Otter are sometimes specifically trapped, but

often they are caught in beaver sets. Fox, wolverine and wolf are generally taken opportunistically, and sometimes in economic "self-defense", as in the case where one trapper's marten line was being "checked" by fox. As at Minchumina, the emphasis seems to be on species for which some volume of catch can be expected. I did not obtain catch data for all species; however, no lynx had been caught by Telida trappers through January, 1977.

Other Considerations Affecting Trapping

Ray Collins (vive voce) pointed out that in Nikolai and Telida the cultural attitude toward trapping has a strong influence on how intensively trapping is pursued. Trapping to produce income is commonly considered a normal part of traditional Native subsistence life. Collins noted that, in fact, such trapping is a relatively recent addition to Alaska Native life. As a result, it does not have the same cultural importance that hunting and fishing have to Nikolai and Telida residents. While hunting and fishing are considered virtually a necessity in actualizing one's cultural identity, trapping is viewed more as an option by which cash income can be produced. If other options are available, by which sufficient cash can be produced, trapping effort may decline. Conversely, if other sources of cash are unavailable, or if additional cash is needed for some specific purpose, trapping effort is likely to increase. Collins feels that this is much less likely to happen with hunting or fishing, which have much stronger cultural roots. However, I believe it is happening to a fair extent with hunting and fishing as well--hence the relatively small take in fall of moose at Telida, and the limited effort to take whitefish. But other factors also affect hunting and fishing effort and success.

Table . Beaver Trapped In The Telida Area, 1967-75*.

<u>Year</u>	<u>Number of Beaver Sealed*</u>
1967	114
1968	145
1969	62
1970	105
1971	25
1972	54
1973	70
1974	52
1975	68
1976	53

*Data from Alaska Department of Fish and Game computer print-out of beaver sealing records. In some years, sealing records appear incomplete; these data should be considered as estimates.

Nevertheless, Collins' point is well taken; viewed this way, trapping is perhaps closer culturally to wage labor than to traditional pursuits. One important result of this cultural attitude toward trapping is that the amount of trapline or trapping area may vary dramatically from year to year. For example, if seasonal employment is abundant one summer, enough cash may be obtained to meet foreseeable needs, and very little trapping may be done the following winter. However, having the option to trap is very important, because seasonal employment is not reliable, and unforeseen expenses often occur. Collins emphasized that if cultural groups like Telida and Nikolai are to survive intact, the options to hunt, fish, and trap (as well as cut wood, etc.) must be preserved within the normal year-to-year range, or area, used by the people.

If the cultural attitude toward trapping described by Ray Collins is common among Alaska Natives, it is interesting to consider that in fact there may be a stronger cultural affinity for trapping as a vocation among Caucasians, who developed the practice, than among Alaska Natives with whom it is most closely identified.

At Telida, the difficulty and expense of obtaining gasoline and snowmachine parts at times has been a limiting factor in trapping, and is discussed below as part of a broader problem.

Numerous other considerations such as weather and fur values affect trapping effort and proceeds, but are not unique to the Telida area.

Small Game and Waterfowl

Small game and waterfowl species available are comparable to those in the Minchumina area. Grouse, ptarmigan and snowshoe hares are all taken

incidentally to other pursuits, by youngsters, or when other food is scarce. Grouse and ptarmigan are commonly shot with a .22 rifle, while hares may be hunted or snared. However, neither grouse nor hares are abundant at present, and ptarmigan are typically spotty in distribution. The largest family estimated their fall-winter catch as follows: ducks and geese--none, spruce grouse-10, ruffed grouse-15, ptarmigan-5 to 10, hares--"a few".

Fishing

In the past, the whitefish of the Telida Lakes have been the back-up food supply. In fall, the outlet of the Lower Telida Lake was blocked, ^{when whitefish congregated to leave the lake,} and a winter's supply of whitefish was scooped out. Then the blockade was removed to allow the bulk of the fish to leave the lakes for the winter. The whitefish were harvested in that way for many years, apparently without detriment to the whitefish population. In the most recent years, men who knew where and how to build the blockade have either died or been employed elsewhere, and the whitefish have not been harvested except in a very limited way with spears, clubs, or by shooting. There seems to be some renewed interest in the traditional whitefish harvest, however.

Some fish are caught with gill nets. In fall, there is a particular effort to catch sheefish with nets and by hook and line at the mouth of Highpower Creek. I do not know the total catch, but family catches ranged from 10 to about 60 sheefish in 1976. Some silver salmon are also taken with nets in fall at the mouth of Highpower Creek.

Alt (1972) found that numbers of sheefish spawn in about the first 200 m of Highpower Creek. At that time, he stated that "It appears almost the entire Kuskokwim River sheefish population spawns in the lower 200 m of Highpower Creek". He also noted another potential sheefish spawning area in the Middle Fork, a tributary to Big River, west of Nikolai.

In the course of test netting for sheefish in Highpower Creek during late September and early October, Alt (op.cit.) caught numbers of silver salmon and hump-back whitefish, a few dog salmon, round whitefish, broad whitefish, least cisco, grayling, northern pike, and one sucker, in addition to numerous sheefish. Alt (vive voce) said that the hump-back whitefish in Highpower Creek probably enter the Telida Lakes, spawn, and leave. He identified whitefish being caught at the Telida Lake outlet as hump-back whitefish, rather than lake whitefish as supposed by Collins (vive voce). Some broad whitefish were also being caught.

Some gill netting is done in spring and summer at Telida, but it appears the fish resources are not being used as intensively as they once were.

Berries and Gardens

Various berry species are picked in the immediate Telida area, but blueberries and lingonberries (low-bush cranberries) are usually most abundant and most sought. In 1976, blueberries were abundant but low-bush cranberries were scarce. Quantities picked were not recorded.

No gardens are presently raised at Telida.

Logs and Wood

Timber suitable for building logs is found mainly along the Swift Fork above Telida, and along Highpower Creek. There is no large timber in the immediate vicinity of the village. Most of the cabins appear to be fairly old, but a new community building was built of logs just a few years ago. There appears to be sufficient timber for local building purposes, although some effort is required to move it from existing stands to the village.

Similarly, firewood is available but not at hand. It too must be hauled some distance. Most firewood is spruce (probably white spruce). Most people estimate that 5-6 cords of wood per cabin are required for the winter. There are seven occupied cabins in Telida; the minimum fuel requirement then is 35 to 40 cords of firewood. Coleman camp stoves are commonly used for cooking.

General Considerations Relating To Subsistence Use At Telida

Although the Telida area is not particularly rich in natural resources, a small village has existed there for a considerable time in spite of hard times that undoubtedly occurred.

Due to the somewhat limited resources and to its isolation, Telida is today a difficult place to make a living. Winter or summer, a long trip by surface transportation is necessary to reach any supply center. Until the new elementary school opened in 1976, there was no mail service to Telida--at least, since dog team days. People in most villages were able to order supplies via parcel post, or at least have goods delivered at air freight rates. For years, however, people in Telida had to charter an airplane to bring various supplies, which greatly increased costs.

Radio communication has been used for the past several years, first by a resident, and now by the school.

Outboard motors, snowmachines, and chain saws have become standard equipment, and with them has come the need for fuel and parts. Fuel has been particularly costly to import, and the cost of repair parts has climbed steadily. Cash is sometimes scarce or unavailable when supplies are needed. However, contemporary subsistence pursuits are largely geared to the use of these various machines, and without their use the people's ability to take advantage of subsistence resources may be badly impaired. The case where snowmachines have replaced dog teams is a classic dilemma. Summer employment to earn cash with which to purchase various commodities has become almost the rule. But such employment generally means leaving the village for some period of time. This means that fishing for dogs is curtailed--at least for many people. The snowmachine provided an alternative that did not require fishing, with many added advantages, such as speed, hauling ability, etc. But, snowmachines break down and require gas, and cash may not be available when they do so. Or the long delay in getting the needed supplies may interrupt some activity. Meanwhile, dogs have been disposed of, and for those activities which require transportation, there sometimes is none available.

Employment away from home affects other subsistence activities, ranging from hunting to wood cutting. One Telida man spent most of the fall working as a big game guide, and missed the best part of moose hunting and fall fishing. Although many people successfully meld conventional employment and subsistence pursuits, it has been my experience that it requires some practice to do so.

The skills required for subsistence living are acquired through practice and become effective through improved knowledge of the area used. If employment, formal schooling, illness or other factors divert the subsister, he may not only have less time in which to accomplish necessary tasks, but he may also be less well prepared to do the tasks. I have found this consideration to be true in my own case, and I feel that the young families of Telida may be coping with some similar difficulties, even though they are much better acquainted with subsistence living than I.

The Department of Interior's proposed North extension of Mt. McKinley Park would overlap Telida use areas principally east of Telida in the Sprucefish Lake-Yoder Lake-Otter Lake-Highpower Creek triangle, and in the Shishnona River-Fish River area south of Highpower Creek. The trapline extending toward Fish River is presently not being used beyond the cluster of unnamed lakes northwest of Dull Axe Lake, but formerly it was trapped as far as Fish River, which stays open in winter. Trapping areas of two trappers are involved. If the Park extension were to extend west of the Swift Fork, an additional Telida trapline would be involved (cf. Alternative B-8). Also within the basic proposal are three Native allotment applications by Telida residents.

The Eastern Area

The Area

Within the proposed North extension of Mt. McKinley National Park, That portion east of the McKinley River, I will refer to as the "Eastern area".

The Eastern area is larger and more varied in topography and vegetation than the balance of the proposed North extension. Whereas the Minchumina and Telida areas are predominately black spruce "flats", in the Eastern area the flats are largely confined between the McKinley and Bearpaw Rivers. East of Bearpaw River, the Kantishna Hills and the uplands adjacent to the foothills of the Alaska Range give a distinctly different character to the land and habitat. The black spruce flats of the Eastern area closely resemble those of the Minchumina area, except that in general the spruce stands are thicker, and isolated areas of improved drainages where birch, aspen or larger spruce grow seem more common. Near the lower reaches of the Bearpaw River, particularly outside the proposal area, extensive treeless bogs (Vioreck and Little 1971) occur.

Using ERTS imagery and aerial reconnaissance, Valkenburg (1976) developed a vegetation type map of most of the Eastern area. Although he notes that in some cases his treatment was simplified, still there appears to be considerably greater diversity of vegetation than appears in the Minchumina-Telida area. In particular, dry tundra, dwarf birch-willow, and aspen-birch forest types are more common.

Of the approximately 2,200 miles which he mapped, including from Kantishna north to about 12 miles north of the proposed extension, and east to the Parks Highway, Valkenburg (op.cit.) estimated the following vegetation composition: forest and woodland--5.4%, shrub types--9.5%, tundra (wet and dry)--18.2%, and "mixed mosaics" of various and sometimes indeterminate types--65.9%. However, 25% of the total area was estimated to be vegetated by a combination of aspen-birch forest and spruce woodland

(black spruce stands) and this was included in the "mosaic" category. Clearly, the vegetative cover includes more "upland" vegetation than further west, in response to the more rugged terrain.

People

The geology of the Kantishna Hills ultimately affected not only the topography and vegetation of the Eastern area, but the endeavors of early white men also. Bundtzen (in press) notes that prospectors stampeded to the Kantishna area in 1905 after news of gold strikes reached other parts of Alaska, but that most of them had left within a year. Those who stayed mostly wintered at Glacier, Roosevelt, or Diamond, but a very few stayed year-round at what is now called Kantishna. The early miners and prospectors who stayed in the area relied heavily on wild game for meat, and eventually on gardens as well (Bundtzen, in press). Mining for gold, silver, antimony, and lead has continued sporadically over the years, with renewed interest and activity in the 1970's as the value of gold and other minerals ascended (Bundtzen, op.cit.).

It is interesting to note that many of the major trails (including the road through Mt. McKinley Park) to the Kantishna Hills, now used by trappers, dog mushers and other recreationists, were originally built to provide access to and from the mining areas (Bundtzen, in press, and pers. obs.). As emphasis shifted from river transportation to railroad, road, and air, the sled roads to the Kantishna River went unused by the mining community. Some are no longer used at all, and are gradually disappearing, while others are used only by trappers and occasional recreationists.

Prior to the waves of prospectors that washed over the land, Athapaskans lived in the Eastern area at various seasons. Wickersham (1938) said the "Coskakiet" Indians had their hunting grounds on the Toklat River, and, according to Father Julius Jette, formerly lived there for the greater part of the year. Wickersham (op.cit.) also said the Indians' spring moose hunting camp was on the south bank of the Kantishna "opposite the inlet of the Toklat".

Sheldon (1930) commented that Indians from Lake Minchumina used the Toklat Springs area, and a band was present when he visited there in late January, 1906. Use of the area no doubt continued through subsequent years, but I have not attempted to document it in this study. However, Percy Duyck, who was born and lived as a boy around Bearpaw, said (vive voce) that in the early 1940's "quite a few" people lived in that area, including some white men. Duyck added that most people left for Nenana and Tolovana soon thereafter for a variety of reasons including the death of some of the men, and the need to put children in school. Although various families hunt, trap, and have filed on allotments along the Kantishna, Toklat and Bearpaw Rivers, none have returned to live permanently. With the exception of one family, no one has filed an allotment within the proposed extension, but several filings are nearby.

Few people now live year-round in any part of the Eastern area. One trapper has spent 9 to 10 months each year since 1971 (except 1975) at Bearpaw, a miner lives all or most of the year at Stampede, and a few people have spent one or more winters (and in some cases most of the summer) in the Kantishna area. In 1976-77, seven people wintered in the

Kantishna area. Two to three members of one family spend several months of the year trapping in the vicinity of Bearpaw, largely within the proposed extension. One man spent the current winter at Glacier, but was just enjoying living there and was not involved in trapping or mining. One Fairbanks resident on leave of absence from his job lived in Kantishna and trapped upstream to Spruce Creek, and down to Glacier, using a snowmachine for transportation. Finally, there was some freighting activity related to the Crooked Creek Mine.

Although other people used the Eastern area for various pursuits, such as recreational hunting, trapping, etc., I know of no other people involved in what might be considered subsistence-type use.

Wildlife and Subsistence Use in the Eastern Area

The same basic assemblage of mammals, birds and fishes occurs in the Eastern area as in other parts of the proposed North extension, but the distribution and relative abundance of the different species varies in response to the more varied habitat. In particular, those species of mammals and birds adapted to alpine and subalpine country, such as Dall sheep, grizzly bear, and hoary marmot are more common.

Appendices C and D of the Final Environmental Impact Statement for Mt. McKinley Park (U.S. Department of Interior, 1974) provide a thorough listing of animal and plant species of the Park which is largely applicable to the Eastern area as well.

From the standpoint of subsistence use, however, the same species are of principal importance in the Eastern area as further west.

Large Mammals

At present, moose are of most importance for subsistence or subsistence-type use in the Eastern area.

Moose numbers in the Eastern area are not particularly high, and it is very likely that declines in response to severe winters have occurred. In localized areas, hunting, as well as predation, may have contributed to the declines. While there is every likelihood that some moose move in and out of the present Park, such movement, and the reasons for it, are not well documented. In similar circumstances elsewhere (e.g. Tanana Flats area) moose normally leave the foothills during November through January, but rapidly accumulating snow in the higher country may hasten the movement.

The presence of moose in lowland wintering areas was undoubtedly important to early residents, both white and Indian, but with hunting seasons now occurring in fall, the opportunity to take advantage of natural movements to obtain meat is not legally available. However, the present local subsistence use of moose appears quite low; aside from Kantishna, three to four moose may be taken for local use in or very near the proposed extension. At Kantishna, five moose were reportedly taken, two or three of which were taken by recreational hunters. According to Alaska Department of Fish and Game records, the areas with significant moose harvests in 1975 were the general Savage River-Toklat River-Stampede area where five moose were taken, and the entire Kantishna River (including Kantishna "village") where none were taken.

Individual harvest report cards corroborated this information. Kill records for the 1976 season are not yet available, but from what I learned, and from knowledge of previous reported take, constraints imposed by current regulations, and constraints of access, I would guess the total number of moose taken in, or very near, the Eastern area did not exceed 25. An additional limiting factor on the take of moose is that moose are simply not as abundant as they were in previous years. Nevertheless, the recent low level of take should not cause concern for the welfare of moose.

The McKinley caribou herd is known to have ranged throughout the Eastern area for many years on a seasonal basis (Hemming 1971). Although the herd's size is much diminished, small bands still are observed in various locations. I observed 14 caribou near Eight Mile Lake on March 1, 1976; Will Troyer (vive voce) and others have noted caribou wintering north of the Wyoming Hills and west of Kantishna. As in the Minchumina area, small bands may show up in widely scattered locations throughout winter. Generally speaking, caribou have been unavailable for local or subsistence use; in addition, the hunting season and bag limit have been greatly restricted. As a result, the number of caribou taken from the McKinley herd for local use is essentially zero except at Kantishna, where residents may chance to take one. Six caribou were reportedly taken around Kantishna in 1976, including an unknown number by hunters from other localities. The total number of caribou reported taken from the McKinley herd was four in 1973-74, ten in 1974-75, and 13 in 1975, ^{according to Alaska Dept. of Fish & Game records.} Recreational hunting probably accounted for the bulk of the take in these years.

While caribou were certainly important historically in the subsistence scheme for both Athapaskans and early white residents, that is no longer the case, nor is present subsistence-oriented use consequential to caribou welfare, if it occurs at all.

Grizzly and black bear both occur in the Eastern area of the proposed extension. Valkenburg (1976) noted that black bears were uncommon east of the Toklat River, that both species are found in the Kantishna Hills during summer, and that except for salmon spawning areas, black bears are probably most common west of the Kantishna Hills; however, grizzlies have been seen occasionally on the Kantishna River. Black bears do congregate around Bearpaw when salmon are abundant in September (Robert Dick vive voce). Valkenburg (op. cit.) characterizes grizzly seasonal movements this way: bears moved from denning areas (generally on upper slopes of hills) to flood plains in April and May; in late May, bears moved to alpine areas, then in late July they dispersed to berry producing areas. In October, they return to denning areas, but at salmon spawning areas, bears concentrate prior to denning. A very similar pattern, which is determined basically by food supply, occurs among black bears, but blacks frequent alpine areas less than grizzlies.

Grizzlies are generally sought only by recreational hunters. Subsistence-oriented users are not likely to kill a grizzly unless it is a threat to human life or property. By virtue of the seasonal distribution of subsistence users and grizzlies, the two have little contact. The number of grizzlies killed by recreational hunters in the Eastern area has

varied from one to 17 per year since 1961 (Valkenburg 1976, from Alaska Department Fish and Game data), but in the last several years has averaged five per year.

Black bears are often taken for food as well as for the pelt. Three black bears were taken at Bearpaw (out of the proposal area) in 1976, but I do not know of any others taken for food. Only recently have regulations required sealing of black bear hides and skulls, thus providing a firm estimate of bears killed. Although interest in recreational hunting for black bear has increased, there is no measure of the increase available. Sealing records for black bear indicate one and four have been taken in, or very near, the Eastern area in the years 1975 and 1976, respectively. No doubt the difficulty of access west of the Kantishna Hills constrains recreational taking of black bear; as Valkenburg (1976, p.2) said "the low-lying country west of the Kantishna Hills is virtually unreachable in summer and not much more accessible in winter". Because few subsisters are in the area during the spring-fall period, encounters where bears are taken are few.

Furbearers

The principal subsistence-oriented uses in the Eastern area are trapping and related activities, largely because there are virtually no year-round residents of the area except a few miners and the occasional person who just wants to spend a winter in the bush.

The only part of the proposal area where subsistence-oriented trapping and related activities occur is around Bearpaw. One trapper spends eight to

10 months of the year living at Bearpaw, which is out of the proposal area. Most of his trapping area also lies north of the proposal area, but in some years he may trap within the proposal boundary.

Another family, who live in Nenana, does trap within the proposed boundary. Their trapline enters the proposal area on the old mail-"cat" trail east of Bearpaw and south of Alma Lakes, and follows that trail to Diamond. Several lake-slough areas in the lowlands adjacent to the Bearpaw River are trapped for beaver and mink, in addition to regular trails in the area where lynx and marten are the species of most interest. The family has one Native allotment application near the confluence of Bear Creek and Bearpaw River, where the father's parents' home was. In addition, they have two allotments north of the proposal boundary--one near the mouth of Flume Creek, and one at Bearpaw.

This family's trapping has evolved as the father, who after leaving Bearpaw as a boy became involved in the wage economy, [then] gradually began to spend more time trapping in the area and developing the old traplines. Since about 1950, he has trapped beaver in the general Bearpaw area, and since about 1970 he has increased his efforts to develop traplines for lynx, marten, and other species. At present, two to four members of the family trap in the Alma Lakes-Diamond-Bearpaw area within the proposal area, in addition to trapping along the old mail-"cat" trail almost to Nenana.

The take by these various trappers is relatively modest but for some species fluctuates greatly. The average catch of the lone trapper at Bearpaw is approximately as follows: lynx--31 (range: 1-65), fox--1 to 5, mink--10 to 20, marten--10 to 30, wolverine--1, beaver--20 to 25, muskrat--variable.

The family trapping within the proposal area travels by snowmachine, in contrast to the Bearpaw trapper who usually walks, and their catch is often larger. Their catches, since 1973, have been as follows:

<u>Year</u>	<u>Lynx</u>	<u>Wolf</u>	<u>Beaver</u>	<u>Fox</u>	<u>Wolverine</u>	<u>Marten</u>	<u>Mink</u>	<u>Otter</u>
1973	198	10	25					
1974	202	15	34					
1975	38	5	34	6				
1976	10	-	25	4	2			
to Feb.1977	4	-	-	2	-	26	20	2

It should be noted that not all of the take came from within the proposal area, but it is not always possible to separate proposal-non-proposal catches.

In particular, most of the wolves are caught outside the proposal area, as is a substantial part of the lynx. The very high catches of lynx reflect their extreme abundance at the peak of their cycle. Interest in muskrats has been low, principally because of low prices until 1976, but partly because the people involved do not necessarily stay at trapping camps through break-up, when muskrats are usually hunted.

The trapper who operated from Kantishna caught approximately 50 marten, one wolverine, and two fox by March 1, and was pulling his traps at that time. In addition to these trappers, in 1976-77, there were six to eight recreational trappers (people who were regularly employed and trapped on weekends) who trapped in the Stampede Trail-Toklat River-Sushana River country. A substantial part of the area they trapped is state land, not included in the Department of Interior proposal.

The numbers of wolves and of wolverines taken in either the proposal area, the area of ecological concern #1, the Toklat Springs area a few miles north of the proposal and miscellaneous adjacent areas are summarized below for recent years (data from Alaska Department of Fish and Game).

<u>Year</u>	<u>Wolf*</u>	<u>Wolverine</u>
1972-73	15	No Sealing Records
1973-74	10	No Sealing Records
1974-75	14	3
1975-76	4	8

*One to three wolves per year were taken in the proposal area or area of ecological concern.

In summary, there is a relatively modest take of furbearers by subsistence-oriented trappers in the Eastern area. Recreational trappers take some furbearers in the area of ecological concern #1, immediately north of the present park boundary. The nature of the habitat in that area suggests that principally large furbearers are taken, but I have not investigated catches of recreational trappers.

Use of other resources in the Eastern area by subsistence-oriented users is necessarily limited by their small numbers and by their predominantly seasonal occupancy of the area. Wood is the chief fuel for trappers and at least some of the miners. One miner said he obtained wood from land he cleared ahead of his mining operation. I did not develop an estimate of the amount of wood used by various residents of the Eastern addition. With the possible exception of the Kantishna area, firewood use in the Eastern area is inconsequential.

Essentially the same circumstances apply to the use of logs for building. One new cabin was built near the mouth of Flume Creek, just outside the proposal boundary in 1973. Some logs from within the proposal boundary may have been used. Although I did not find any other case of log use, I may have overlooked such. However, aside from the Kantishna area, and possibly the fringes of the area of ecological concern in the Toklat-Savage Rivers country, this is not likely to have occurred.

Because of the seasonal occupancy of the Eastern area, I did not attempt to detail use of resources such as berries, wood for building, sleds, etc., and waterfowl or other small game. Gardens are apparently raised at Kantishna, but not in the Bearpaw area, although when people made their homes there in the '40's, gardens were raised regularly.

The only person in the Eastern area who uses any number of fish for subsistence purposes is the trapper at Bearpaw who keeps three sled dogs. In fall he nets and dries dog salmon, whitefish, and suckers. His catches since 1972 are as follows: 1972--50 salmon, 1973--300 salmon, 1974--300 salmon plus 200 suckers and whitefish, 1975--did not live there, 1976--250 salmon plus 600 suckers. This trapper, as well as people at Kantishna and others who are in the area during the ice-free seasons, take grayling for table use.

Summary Comments on the Eastern Area

Throughout the discussion of the Eastern area, I have tried to use "subsistence-oriented" or some similar term instead of "subsistence". This

usage recognizes two considerations: 1) my own conception of "subsistence" is substantial dependence by local residents on renewable resources for their livelihood; in most cases, people using the Eastern area either do not live there year-round, or they derive their living from mining, or both; and 2) recognition that some people would not agree with my perception of "subsistence", and that readers could justifiably criticize me if I considered one group of users as subsistence users, even though that group did not even meet my own criteria.

Nevertheless, I believe there is a greater affinity between contemporary trapping and my perception of subsistence, for example, than between mining and this perception. It seems to me that mining involves a greater commitment to conventional social and economic considerations than does trapping in the "bush"; conversely, mining has fewer ties to the life of the land. These comments are not intended as a condemnation of mining, but rather as aids outlining my perception of subsistence use.

The foregoing comments illustrate one of the most substantial differences in subsistence use between the Eastern area and the Minchumina and Telida areas. That difference is permanency of residence. Those who are involved as subsistence users at Minchumina and Telida are mostly full-time local residents, whereas generally, subsistence users in the Eastern area at present live elsewhere part of the year.

A second substantial difference between the Eastern areas and the Minchumina-Telida areas is the extent to which trapping and related uses developed in historic times. The Minchumina area in particular sustained

more trappers over a longer period than did the Eastern area. There are probably several reasons involved, including the early emphasis on mining and mining services in the Eastern area, the persistence of a loose community at Minchumina for various reasons, and, very likely, better habitat for furbearers at Minchumina. There seem to be no record of extensive traplines in the Eastern area that would compare with the marten lines at Minchumina or Telida, which suggests that the upland habitat is not as good as ^{habitat} at Minchumina or Telida. Presently, serious trapping efforts in the Eastern area are concentrated near the Kantishna River, where furbearer habitat is more diverse than at higher elevations.

In summary, subsistence use, or subsistence-oriented use, in the Eastern area is of limited geographic extent; it is pursued by a mere handful of people, and it appears to be of little impact on resources of the area.

Summary and Discussion

The Area

The proposed North addition to Mt. McKinley National Park is an irregular polygon containing 1.6 million acres. The addition is maximally about 70 miles from south to north, and about 130 miles from near the Parks Highway to its western-most boundary south of Telida.

Broad lowlands sloping gently to the north comprise most of the proposed addition. The Kantishna Hills and a few lesser hills punctuate the impressive expanse of self-perpetuating black spruce "flats" and treeless bogs.

The Kantishna River and its tributaries drain most of the proposal area, but the Kuskokwim River drains the extreme western part of the proposal.

Fauna and Flora

Fauna of the proposed North addition is typical of Interior Alaska. Moose, caribou, Dall sheep, grizzly bear, black bear and wolf are the large mammal species present. Wolf, coyote, fox, wolverine, otter, marten, mink, weasels, beaver, muskrat and lynx are furbearers of the area. Various small mammals are also present.

Few bird species overwinter in the area. Most prominent are raven, gray jay, three species of woodpeckers, three species of grouse, two species of ptarmigan, and several species of song birds. In summer, the area is invaded by migrant birds of all descriptions which have returned to nest and raise young.

Fish of the area include ^{freshwater} resident species such as several kinds of whitefish, northern pike, burbot, sheefish, sucker, and some smaller species, in addition to king, chum, and silver salmon migrants from the sea.

Flora of the proposal area is also typical of Interior Alaska. The dominant species include black spruce, white spruce, paper birch, trembling aspen, and cottonwood. A substantial part of the North addition supports black spruce and bog flats. Along streams, on better drained areas, and sometimes where wildfire has occurred, mixed stands of white spruce, birch and aspen occur. In boggy or subalpine areas, and on river bars, various shrubs may dominate. A small proportion of the area supports tundra.

A comprehensive fauna and flora list for Mt. McKinley National Park which includes most, if not all, species of the proposed addition is provided in the Mt. McKinley Final Environmental Impact Statement (U.S. Department of Interior, 1974).

The population status of the more important species is known only in general terms. The McKinley caribou herd is at very low numbers (1000-2000) compared to former years; in 1941 the herd was estimated at 30,000 and in 1963 at 12,000. The period of greatest caribou use was apparently the 1920's and '30's, when trappers, prospectors, miners, and market hunters were most active, and sled dogs were fed caribou. Hosley (1966) notes that caribou had been a mainstay for Nikolai and Telida people until 1932 when too few were available to be important. Both Hosley and an Indian informant felt that the excessive killing of caribou by the Indian people that occurred when repeating rifles were introduced was the cause of the caribou disappearance. Yet, with 30,000 animals in the McKinley herd in 1941, it seems unlikely that human use caused the decline of that caribou herd. Also, there is an excellent possibility that caribou hunted by Telida and Nikolai people were not even part of the McKinley herd.

Whatever the reasons may be, caribou are now scarce in the proposed North addition. If predation by man, bears, and wolves is not excessive, and if weather and range conditions are reasonably good, caribou should again increase. Since 1973-74, the recorded take of caribou by man has ranged from 4 to 13 per year, mostly through sport hunting, and is probably not a significant mortality factor.

The population status of moose is low to moderate, compared to the status of 10 to 20 years ago. Except possibly for very localized areas, man can be ruled out as a cause. Moose numbers in Interior Alaska in general have declined over the past ten years, mainly due to weather conditions and possibly food supply, with help from man and other predators in some areas. But in much of the North addition, hunting has been too limited to abet a general decline. The total annual take in or near the North addition has been about 45-55 moose over the last four to five years. An estimated 25-35 are taken by subsistence users.

According to residents and trappers in the proposed North addition, wolves are less numerous than they were when caribou and moose were numerous. However, wolf tracks are common, and wolves and kills made by wolves are regularly observed. I estimate that an average of five to 10 wolves are taken annually by subsistence users; the total recorded take by all means in or near the proposed addition has ranged from four to 15 since 1972-73.

Beaver and marten are the two *additional* furbearer species of particular interest to subsistence users. Beaver are of major importance to trappers for the fur, as well as for human and dog food. Beaver can be over-trapped in local areas if too many trappers use an area, trappers trap too intensively, or both. Competitive trapping by subsistence users has resulted in reduced beaver in at least one area in recent years; reduced trapping effort has more recently relieved some of the pressure. Beaver, as well as otter, mink, and muskrat habitat has been reduced by a gradual lowering of the water table over the last 10 to 15 years.

Although beaver are actually numerous and widely distributed in the North addition, some constraints on trapping are needed in local prime beaver trapping areas. In fact, one trapper has suggested a lower take limit in the Muddy River flats.

Based on interviews and sealing records of beaver harvests, I estimate that the annual beaver take in and near the proposed addition ranges from 150 to 250 each year.

Currently and historically, marten have been the most important furbearer in much of the proposed North addition. Only in years when market value of marten furs has dropped, or in areas of less favorable habitat where marten are fewer, have marten failed to be most important. There have been few if any years since the 1920's when there were so few marten that trappers felt they could not or should not trap. The present number of local marten trappers ranges from eight to 12, and the annual catch ranges from 400 to 700 marten. However, in earlier times when more trappers were active, the marten take was probably several times the current harvest. In the Minchumina area, where the most extensive marten trapping has occurred, as many as 1000 marten have been taken in one season. Marten prefer open black spruce stands, and the abundance of this habitat between Lake Minchumina and Mt. McKinley Park is undoubtedly the reason marten have been rather consistently abundant. For a period of about 60 years, marten trapping has been the most consistent occupation of Minchumina residents.

Other furbearers are taken as opportunity arises. Lynx periodically are an important furbearer when their numbers are high, particularly in the eastern part of the proposed North addition.

In 1974 and 1975, one trapper, whose trapline extends into the proposal area near Bearpaw, averaged 200 lynx per year. Lynx numbers are cyclic, however, and in 1976 the same trapper caught ten lynx. Such variations are normal, and have been recorded in various parts of the state during the last 15 years.

The following table gives estimates of the take of various important mammals by subsistence users for the last four to seven years.

<u>Species</u>	<u>Major Use</u>	<u>Range of Est. Annual Take</u>
Moose	Human food, skins for home use	25-35
Caribou	Human food, skins for home use	0-5
Wolf	Fur for sale and home use	5-10
Black Bear	Human food, fur for home use	0-5
Grizzly Bear	Fur	0
Wolverine	Fur for sale and home use	10-15
Otter	Fur for sale and home use	15-25
Mink	Fur for sale and home use	30-90
Marten	Fur for sale and home use	400-700
Beaver	Fur for sale and home use, and human and dog food	150-250
Lynx	Fur for sale and home use, some human and dog food	10-300

Small game and waterfowl are generally taken opportunistically. When a particular species such as snowshoe hare is abundant, it may be used extensively for food and home use of fur. However, these smaller species are seldom, if ever, as important as they were in earlier times.

Fish of various species comprise an important resource for residents in or near the proposal area. At Telida, Minchumina, Bearpaw and to a lesser extent at Kantishna, fish are caught for human or dog food. Although the fish are nearly all caught outside the proposal area, they contribute to overall support of people who hunt or trap in the proposal area and in adjacent areas. The principal species taken are hump-back whitefish, broad whitefish, suckers, and at Telida, sheefish. At Bearpaw, dog salmon are also taken. In total, 8,000 to 15,000 fish, of which 75-90% are whitefish, may be taken annually by residents in or near the proposed North addition. At Minchumina alone, over 8000 fish were taken in one year for use as human food, dog food for three dog teams, trapping bait, and garden fertilizer. Minchumina is currently the only place near the North addition where dogs are used for trapping and general transportation. As food for people, fish are probably most important at Telida, where there is a long tradition of obtaining quantities of whitefish for winter use, and where the cost of imported food is exceptionally high. However, whitefish are a favored and important food at Lake Minchumina, also.

Aside from the transcendent importance of vegetation as habitat for wildlife, the most important uses of vegetation are for fuel and building materials. Nearly everyone who resides in or near the proposal area burns wood for fuel, and with the exception of the Kantishna mining area,

cabins are built almost exclusively of logs. In addition, logs, poles, and homemade lumber ^{are} ~~is~~ used extensively for outbuildings and equipment. Trapline cabins are invariably made of materials at hand, and use wood for fuel.

While numerous trapline cabins and camps are located in the proposal area, most permanent residences are outside the proposal area. For these permanent residences, I estimate that about 200 cords of firewood are required annually. Use of wood for fuel and for trapline cabin building, repair, and replacement within the proposal area is much less than at permanent residences, but it is highly important to the users. Cabins and camps are an integral part of traplines because they provide shelter far from home.

The greater range and speed of snowmachines has reduced use of cabins and camps, most of which were located to accomodate trapping by dog team. However, the cabins and camps now represent "insurance" against the inconvenience or danger of break-downs.

The other major use of vegetation in and near the proposal area is berry picking. Use of berries varies tremendously among families, depending upon the extent to which commercial fruit products are used. However, for virtually all families, berries represent an important food supplement.

Gardens are a particularly important food source at Lake Minchumina, and are used to some extent at Kantishna. Formerly, they were also quite important at Birch Creek (near Minchumina) and at Bearpaw, but as

residency in these places became seasonal, gardens were discontinued. Gardens are apparently not raised at Telida.

People and Subsistence Use

In the last two to three years, the usual number of people living in or near the proposal area has been about 65. Of these, about 45 are dependent to some degree on resources of the proposed North extension. These people are distributed in the communities, or places, of Telida, Lake Minchumina, Birch Creek (Minchumina area), Kantishna, Bearpaw, and Stampede.

Twenty-five people (excluding two teachers) live at or near Telida. Of these, 21 depend on resources of the proposal area to some degree, through personal trapping, hunting, or communal use of resources obtained. At present, only one marten trapline has been over-laid by the proposal area, but two additional traplines are quite close to the proposal's western boundary, and in fact formerly extended into the proposal area. One of the major beaver trapping areas for Telida trappers lies well within the proposal, in the Sprucefish Lake-Otter Lake-Highpower Creek area. That area, and the area from Fish River and Giles Lake west and north, were trapped and hunted for years by deceased relatives [father-in-law] of the present trappers. The present trappers began using the traplines in 1962-1964. In March 1967, four Telida men ranged east to Whitefish and Long Lakes, apparently in search of caribou. There seems to be mutual respect between Minchumina and Telida trappers with regard to

trapping rights where their respective territories meet.

Although hunting and trapping in the proposal area by Telida people are not as extensive as they once were, subsistence use of the proposed area is still highly important both for its present use, and as an alternative area to be used when resources in other areas, or closer to home, are scarce. Periods of scarcity of one food or income resource or another are generally the rule, rather than the exception. Perhaps with this in mind, three Native allotments were filed in the area now included in the proposal.

At Telida, use of subsistence resources is combined with seasonal employment of various kinds to provide a living. It appears that these two sources of support often compete for the time and energy of the user. Nevertheless, both cash income and subsistence resources are needed to live, and the cash returns from trapping are notoriously variable.

About 25 people live at Lake Minchumina, of whom about 18 are year-round residents. Fourteen residents (including two part-time residents) use the proposal area for subsistence purposes.

Dependence on subsistence resources of the proposal area varies. Four households (12 people) have a large dependence on subsistence resources in the proposed area, while one household (two people) have a limited dependence on resources in the proposal area. The balance of the Minchumina population uses parts of the proposal area for various activities, including berry picking, boating, hunting and general outdoor recreation. One family who formerly lived at the mouth of Birch Creek, 25 miles east

of Lake Minchumina, now live at Nenana, but various family members usually spend much of the period from November or early December through March or later at their homesite, where they trap on their old trapping area.

Three aspects of subsistence use in the Minchumina area are most important with respect to the proposed North addition. First, a substantial proportion of local traplines, including the most productive marten traplines, extend south from Lake Minchumina to near the present park boundary. At present, these traplines are owned by five people; in 1976-77, one line was trapped full-time, three were trapped either part-time, or only a part of the line was trapped, and one line was inactive due to logistic problems. In 1975-76, two trappers were active in that area, and very likely, at most, three trappers will trap that area in 1977-78. The traplines in question were developed by early prospectors and trappers, and have been established for periods ranging from 30 to 50 years. The traplines have passed to the present owners by sale of the improvements, equipment, and recognition of trapping rights. Most of the present owners purchased the traplines shortly after World War II, and only recently have some younger trappers acquired rights to some of these lines.

The second important aspect of subsistence use is that the Muddy River flats is the most important beaver trapping area available to Minchumina and Birch Creek trappers. Unfortunately, through misunderstanding or ignoring of trapping rights, very competitive beaver trapping developed and

contributed to lower beaver populations. In addition, much lower water levels have reduced available habitat. Some additional constraints are needed on beaver trapping in the Muddy River flats.

The third important aspect of subsistence use at Minchumina is that the Muddy River flats is the primary area for moose hunting, and for mink and otter trapping. Moose are by far the most important source of meat for local people. Mink and otter are important furbearers.

Associated with the various trapping and hunting areas are numerous cabins, campsites, nine Native allotment applications, several Native group applications, trapline and travel trails, and miscellaneous resource uses such as berry-picking, gathering diamond willow, and fishing (mainly in Lake Minchumina).

Thus, although subsistence use is more modest than it was, say 20 years ago, it is still of considerable importance to residents of Lake Minchumina. A substantial part of this use occurs in the proposal area, although most wood cutting, logging and some other uses occur outside the proposal area. At Birch Creek, all subsistence uses would fall within the proposal. With the exception of a period from the late 1920's through the mid-1930's when numerous trappers and four fur farms operated at Minchumina, and the more recent difficulties over beaver trapping rights, there is no evidence that either wildlife or habitat have suffered from sixty years of subsistence use.

It is also interesting that while trapping, hunting and fishing have comprised a basic means of livelihood at Minchumina, most subsistence

users of the community are whites who have chosen a subsistence life-style similar to that of Interior Alaska Natives.

East of the McKinley River in the proposed North addition there are no contemporary communities oriented mainly to subsistence resource use.

Kantishna is the only place where a number of people live, and it is basically a mining community. In 1976-77, seven people spent the winter at Kantishna. About 100 people live there during the mining season. At Stampede mine, one man is a year-round resident.

At Bearpaw, just outside the proposal area, one trapper spends most of each year (August through June) doing necessary maintenance, fishing, hunting and trapping. One man from Nenana who was born and lived in the Bearpaw area as a boy, has regularly returned to that area to trap since about 1945. Since the early 1970's he and his family (two to four people) have trapped and hunted more actively in the area, and have filed Native allotments in and near the proposal area on the Bearpaw River. Aside from occasional people who may spend a winter living in the bush, those listed above are the only regular residents east of the McKinley River who either live there year-round or pursue a subsistence-oriented life-style.

Thus, the Eastern area of the proposed addition receives very limited use by subsistence-oriented people and that use is primarily trapping and related activities. However, recreational hunting and trapping occur in various parts of the Eastern area, certainly to a greater degree than further west in the proposed extension.

The Impact of Subsistence on Wildlife and Habitat of the Proposed North Addition

Hosley (1966) did an extensive review of Kolchan Athabaskan occupancy of the area from the Toklat River west to the Swift River, near Stony River on the Kuskokwim. He suggested that in aboriginal times there were three bands in essentially the North addition proposal area, and he estimated that each band numbered 15 to 30 people. Thus, in aboriginal times, when people depended totally upon local resources, there were perhaps 45 to 90 people living in the area. Hosley also suggested that this number was below "carrying capacity" due to intermittent warfare, territoriality, and starvation. If Hosley's estimates are correct, there were as many people subsisting in the proposal area in aboriginal times as there are now, but their food resource demands were surely greater than present subsisters who use "store-bought" food extensively. In fact as late as the 1950's, Hosley estimated that Nikolai residents used six to fifteen moose per year per family.

Because resource use patterns are [probably] quite different now, it is probably not reasonable to attempt direct comparisons with aboriginal use. But, with the total dependence on local resources, it may well be that aboriginal demand on the ecosystem equalled the combined demand of present-day subsistence and recreational consumptive uses, which admittedly are at low to modest levels at the present time.

In any case, this very general comparison suggests that present-day subsistence use is considerably less than aboriginal use, and it is not likely to have any significant ecological impacts, except in special

cases such as local beaver populations.

There is concern that increased numbers of subsistence users may move to the bush and adversely impact wildlife and habitat. The possibility exists, but various factors argue against any increase in sustained activity in the North addition. These factors include the fact that most places where contemporary subsistence living is reasonable, are already occupied; many remaining areas are not productive enough to support any amount of subsistence use; and modern access to potential subsistence areas is often infeasible or very expensive. However, it is true that unregulated, random subsistence-oriented adventures could adversely impact some areas, *temporarily*.

In summary, subsistence use as it is currently regulated, and as it has generally been practiced over the last 30 to 60 years seems to have had little lasting impact on wildlife and habitat of the proposed North addition, nor is it likely to in the future.

Potential Impact of the Proposed North Addition on Subsistence Use

The principal purpose of the proposed North addition is to protect wildlife and habitat, which should be beneficial to subsistence use, if such use can persist.

However, under pending legislation introduced by the Department of Interior, that introduced by Representative Udall (H.R.39), and various proposed policies and administrative rules, there seem to be some potential difficulties for subsistence use as a viable way of making a living.

In general, the great inertia of the proposed legislation and/or policies weighs against consumptive uses. Some specific concerns of subsistence users are reflected in the following questions. How can the addition seek to provide for wildlife minimal disturbance but also encourage subsistence use which involves capturing and killing wildlife? Further, how will subsistence use fare if non-consumptive users find such use objectionable on some grounds? What administrative burdens will be imposed through assumed need to obtain permits for cutting wood for fuel or building materials, making trails, hunting or trapping area, etc.? Of crucial importance will be the official attitude toward "trespass" involving trapline cabins on public lands, many of which have been there for 30 to 40 years, or for replacement of old cabins that are falling down.

Two final examples of matters of concern are; (1) the provision in H.R. 39 and in proposed United States National Park Service policy that continuation of subsistence use in Park additions would only be along direct hereditary lines, which will surely threaten the persistence of subsistence as a life-style; and (2) the provision in H.R. 39 (p. 20, line 19-20) that subsistence use will be given preference over any competing consumptive uses in a subsistence management zone--which presumably leaves subsistence use in a secondary position to non-consumptive uses, even in a subsistence management zone.

Among subsistence users of the proposed North addition, there seem to be more people who are pursuing a subsistence life-style by choice

than there are those who are compelled to subsist. There seems a strong argument for the existence of ideological values associated with subsistence living which transcend cultural lines and are worth taking care to cultivate.

Acknowledgements

I am grateful to the United States National Park Service for providing funds, through the Cooperative Park Studies Unit, University of Alaska, for this study. Although there is more to be learned, I could not have learned this much without funding.

In addition, I thank Zorro Bradley, Ilyne Miller, and Richard K. Nelson for their ever-present helping hands and encouragement.

Those who contributed most to this study were the residents of Telida, Minchumina, Kantishna, Bearpaw, and Nenana. At Minchumina, Val Blackburn shared his enthusiasm for and knowledge of Lake Minchumina's history; Tom and Mary Flood have generously given their time, effort and knowledge; Kenny Granroth provided many key recollections and lively anecdotes, and Bob Thompson and Leonard Menke provided much detailed knowledge. In addition, Bob did me many favors which indirectly helped this study greatly.

At Nikolai, numerous people were very helpful in providing information and opinions. Antone Pitka gave me much help with facts about Telida traplines, and Pete Gregory provided insight regarding trapping in earlier days. The village kindly allowed me to copy a trapline map, and Kent Stokes, village clerk, was very helpful.

Ray and Sally Collins, of Nikolai and McGrath, deserve special thanks for extending their hospitality and freely sharing their considerable knowledge of subsistence use at Nikolai and Telida.

At Telida, teachers Jane Anderson and Alex Shide provided fine hospitality, and residents John Denis, Steve Nikolai, Dick Nikolai, and

Steve Eluska willingly discussed traplines, trapping and other subsistence pursuits.

Alfred Starr and Percy Duyck of Nenana willingly shared their remarkable knowledge and experience as well as information on subsistence life and history of the Minchumina and Bearpaw areas.

Robert Dick, of Bearpaw and Fairbanks, has always been ready to give me the benefit of his keen observations, accurate records, and warm friendship.

Dan Ashbrook, of Kantishna, extended his hospitality and knowledge of that area.

I'm grateful to Bill Letsch^A for his ability and interest as pilot, observer and friend.

Thanks are due Mel Buchholtz, Alaska Department of Fish and Game, for his help in digging out various harvest records.

Special thanks are due my wife Mary for her help and criticism throughout the study.

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Sept. 20, 77

Letter & maps from Bob Perkowski,
who lives near the Tongoma River,
to be added to the report as an
appendix. RHB Bishop

Dear Dick,

Thank-you so much for your Letter of July 7.
Just got the mail for the first time since the
end of June which is the reason I'm so late in
answering.

I won't be able to write as in depth as I'd like
to because a pilot is coming soon ^{and} it may be
months before I'd get it to you otherwise. I
will pass the Letter on ^(your) to my neighbors and I'm
sure they will write at their first opportunity.

In rough outline form.))

Subsistence Use Importance

A Economically - My wife, Sylvia Kidd, and I ~~live~~
basically make do on about \$3,000 cash a year.
About if not all of our meat, fish, fowl,
berries, and to a greater & greater degree
garden produce comes from the Land
around ~~us~~ us. Generally \$1500 to
\$2000 comes from trapping but that
varies greatly. We have made & sold a
very few items out of wood, (bowls, utensils)
and processed a few furs. We feel within
the next 2 or 3 years as we get our
Lifestyle more together we will be able
to exist totally out here off the land

B. Lifestyle - A subsistence Lifestyle is of
utmost importance to us. We came to

Thoreau did. Neither of us can conceive of
or be happy living in a city or even
a bush village on a permanent basis ever again.
We like people, don't get us wrong. But this
lifestyle fills our hearts.

C. Duration of use.

I trapped & lived on Moose Creek near
Kantishna from ^{Sept. 1970} 1971 to 1973. In 1973 my wife & I
moved to the Tonzona River and have lived here
since. Reason we moved is that we claimed Federal
Land out here.

D. Supplementary means of support.

We are intelligent hard-working people and
usually have no trouble finding a job if we need
one. I have worked for the National Park Service,
McKinley Park Hotel, Ak. Dept. of Fish & Game, & City
of Nome. My wife has worked for City of Nome
and Camp Denali in McKinley Park. We have both
worked for guides in this area myself as a guide
and my wife as a cook. Having seen what actually
happens in guiding operations, my wife & I will
never work for a guide again (most likely anyway).
Don't believe welfare or food stamps is right for us.

Trapping Trails & areas:

I trap basically the whole Tonzona River
drainage from its source to 1/4 mile below the
mouth of Pinetown Creek. I have two basic lines

I run my traplines totally on Cross Country ^{Skis} ~~traps~~

which I run alternate years. See Map: Line ① goes from homesite to Mouth of Pingston, up Pingston then back to homesite via Birch hills. Across Birch Hills to Pingston-up Pingston to our H.Q. site. From H.Q. site to Lake (1913) to Red Paint Creek. From Red Paint Creek down Tonzova to Homesite. From Homesite East 3 miles making big Loop northward and back to homesite. Line ② From T.M. site to Ripenwater creek. From there across to upper Red Paint Creek, down through Amos Lakes and back to T.M. site. A Loop north of T.M. site hitting Scotty Lake & Lake (1925) going around Benchmark Plus. Have about 300 to 400 traps total

Species Trapped

Marten 40→75+ Fox 1→5+ Lynx 1→3+ Wolverine 1→6+

Wolf 1→4+ Beaver 1→5, Weasel 1→5

Generally make \$1500 to \$2000 a season.

Home use Marten - compost for garden Wolverine - compost for garden, Wolf - dog food, Fox - dog food, Beaver & Lynx - dog & people food, Weasel - compost for garden. Hope to make more of our furs into garments for greater realized profits. Made & sold Wolf Ruffs. Sold a home tanned moose hide. \$30

Hunting areas & species: Moose, caribou, sheep, blackbear, grizzly bear, ptarmigan, spruce grouse, ruffed grouse, ducks

in. " " " " " place as possible

to homesite. ^{or to site} Hunting pressure from Anchorage residents & air taxi operators very heavy recently but we've still had fair success. One to two moose taken/year. All that's left when we're done is a bloody spot on the ground, Blood & offal used for compost in garden. Fat rendered into lard for personal use & dog food. All guts ~~if~~ possible used for dog food. Head used for trap bait after brains, & tongue take out. Hide tanned and use for gloves, bag's, ^{etc.} which we make ourselves. Bones used for dog food after meat taken off & marrow extracted.

Caribou - same as moose but have to go to Tundra

areas to hunt them (see map)

Sheep - Same ^{in area} as moose & caribou (see map for hunting area). Use antlers of moose & caribou for carving, utensils, & sale.

Black bear & Grizzly - Not encountered regularly. Would kill them when law says its legal wherever found. Again all would be used for our food, clothing, compost, & dog food. 1 grizzly & 1 black killed since we've been out here.

Plumiger: Found mainly on tundra but also around homesite most winters. Save feathers for pillows. Eat meat. 10 → 30 a year.

Spruce Grouse: Encountered in all spruce forest and usually shot when encountered. 20 → 40 a year. Feathers saved for pillows. Eat meat.

Waterfowl - Taken in season wherever found, 5-20 but will be more as we finish proving up on sites. Feathers saved, meat eaten.

Berry Picking Areas:

Picked where ever found but major producing areas on Birch Hills for cranberries, Along River for Rosehips, Bench marks "Plus & "Lois" for cranberries, blueberries, & know berries. Cow berries & blueberries 6 qts. a season, CRANberries 12 qts. a season. It will no doubt increase as we get more into it.

Fishing Sites & Techniques: 6"-15"

Grayling & dolly varden found in almost all ponds of good size & streams. Fish in the Tonzont Rod & Reel in fall and small feeder streams near homesite during summer. In lakes around T&M site & streams going into Tonzont, Catch 100 to 150 each a year. No salmon come up Tonzont beyond Dennis Creek. Hope to set up Fish camp there in near future. Lake trout & pike are caught by rod & reel in summer & through ice. 5-10 each a year. Dabot occasionally caught

Firewood & Log cutting areas

Near homesite there's a stand of trees $\frac{1}{2}$ mile downstream that the river has cut into & killed. From it we get our firewood & wood for building which we rip ourselves. 2 cord/yr.

At H.Q., cut dead wood where found $\frac{1}{4}$ cord/yr

Within one mile of site. Use branches of all trees for firewood too. Use only Spruce for firewood. 3^{cords}/year at T & M site.

Birch Trees for Bark & Lumber & Syrup making

All Birch Hill whenever good trees are found. 1 mile south west of T & M site. Several gallons of syrup will be made a year. Probably 10⁺ trees a year for birch bark, & furniture, & utensils.

Diamond Willow - Along River near homesite within 1½ miles. Only novelty so far.

Camp & Cabin sites T & M site, H.Q. site, Homesite, See map for these. Tent frames at Ripsnorter Creek, Head of Red Paint Creek, and one mile below mouth of Red Paint Creek. Plan to put a tent frame on the Swift Fork for trapping there.

Travel trails: Most along River & drainages. Use trapline trails a lot. See map. Ski around for fur just about anywhere on the drainage.

Historic Use known about: Many old camps & trails and trapping sets throughout drainage. All very old. 20-75+ yrs.. Used to be a lot more game in the country but caribou & moose are pretty low. I feel due to overharvest by hunters. Furbeaver populations which prey on these species down accordingly. Amos Turner of McGrath used to trap Amos Lake's area in 40's & 50's. Ray Collins of McGrath probably knows history of area better than anyone else.

Garden Presence - Gardens present at homesite & T&M site. Cannots, turnips, & cabbage grown very well with small amount of attention given. Will be putting more into it as time goes on.

I think that's about all for now Dick. Hope it helps you out. I really appreciate the effort you went to in writing me. If there's any more information you need, just write & hopefully I'll get it to you soon. I'm including one of my own maps for you to keep. Sorry for the messy writing. I'm usually a much weater & better writer.

Please say hi to Harry Reynolds for me & tell him he owes me a letter. If he lets me know where he is now, May be up to see him this winter.

If I could ever help you Dick, just let me know. You're very welcome to stop by & stay if necessary if you're ever in the area. Also if you ever need a Tech IV, I've got a pretty good record with you guys I believe and would especially enjoy anything to be done out here. I know that's not very likely though.

Thanks again.

My best to you,
Bob Prokowsky

R.

MATERIAL ON NORTHEAST ALASKA

STATE OF ALASKA

DEPARTMENT OF HIGHWAYS

INTERIOR DISTRICT

JAY S. HAMMOND, GOVERNOR

2201 PEGER ROAD -- FAIRBANKS 99701
(907) 452-1911

February 22, 1978

D-2 Workshop
Senate Energy and Natural
Resource Committee
U.S. Senate
Washington D.C. 20510

Dear Sirs:

Attached are the following items to be entered into the February 13th to 21st workshop records:

- 1) 1975 Denali Highway Questionnaire Report
This provides detailed information on users activities and their wishes in regard to improvement.
- 2) 1975 Taylor Highway Questionnaire Report
This provides detailed information on users activities and their attitudes on existing conditions.
- 3) Alaska Highway, Tanana River to Mile 1235 Reconnaissance Report
This route is in the proposed Chisana National Preserve. This report shows the federally approved new routing of the Alaska Highway. Please note there is only minor deviation from the existing highway. This routing should be noted in any classification of land as past action and language should be incorporated to insure that no further environmental reports are needed to carry out this action. It should also be noted that the Northwest Alaska Pipeline Corporation plans to use the Haines Pipeline right-of-way for the natural gas pipeline through this area. They should be contacted.
- 4) A proposed railroad right-of-way that would connect to railroads in Canada and ultimately provide rail connection with the lower 48.


5) Taylor Highway, Tetlin Junction to Canadian Border Reconnaissance Report

This route crosses the proposed Forty Mile Wild and Scenic River System. This report shows the new federally approved routing. It was done in cooperation with the DOI taking into account the possibility of this river classification. As such, it has received all the attention that normally goes into a 4(f) statement. Language should be included in classifying the Forty Mile System that recognizes this effort and allows reconstruction of the Taylor Highway without additional environment reports or investigations. Please note the Doyon's testimony at the workshop strongly supported this routing.

- 6) A chart showing energy comparisons of road versus air modes for the route between Fairbanks and Bethel. Environmental and Reconnaissance work is underway. Please note that the mining industry testimony strongly supported this route.
- 7) A chart showing energy comparisons of road versus air modes for the route between Fairbanks and Nome. Environmental and Reconnaissance work is underway. Please note that Bear Creek mining testimony at the workshop strongly supported a portion of this route.
- 8) A chart showing energy savings currently being achieved on the North Slope Haul Road and the significance of this savings.

I appreciate the opportunity to make our views known. The above represents our major concerns for the Interior and Western Regions of the State.

Sincerely,


Bob C. Thomas, P.E.
Regional Planning Manager

cc: U.S. Rep. Don Young /with attachments 4, 6, 7 & 8
U.S. Senator Gravel /with attachments 4, 6, 7 & 8
Rep. Red Swanson /with attachments 6, 7 & 8
Commissioner D. Harris /with attachments 6, 7 & 8
John Umlauf / with attachments 6, 7 & 8

Attachments:
As stated

BT/mp

1975 DENALI HIGHWAY QUESTIONNAIRE REPORT

The following is a summary of responses of Alaskans and nonresident tourists to a questionnaire on Denali Highway usage. Questionnaires were left at road houses along the route from the end of May through October and were also passed out to travelers by a research group from the University of Alaska.

Each question is restated in the summary and the question numbers correspond to those in the questionnaire. A sample of the questionnaire is attached. A total of 1,050 questionnaires were made available to the public and 475 were returned.

Prepared by the Interior District, Alaska Department of Highways. April 1976.

GENERAL INFORMATION

Date of Travel	% for Months	% of Total
June 8-14	50%	1%
June 15-21	25%	
June 22-28		
June 29 -		
July 5	25%	
	100%	
July 6-12	29%	48%
July 13-19	32%	
July 20-26	27%	
July 27-August 2	11%	
July	1%	
	100%	
August 3-9	6%	35%
August 10-16	14%	
August 17-23	47%	
August 24-30	31%	
August	2%	
	100%	
August 31-		
September 6	51%	15%
September 7-13	29%	
September 14-20	18%	
September 21-27	2%	
	100%	
September 28 -		
October 4	33%	1%
October 5-11	33%	
October 12-18	33%	
	100%	100%

No. in Party	Resident Response: 339	Nonresident: 129
1-2	40%	49%
3-4	43%	37%
more	17%	14%

Where are you from?	Resident Response: 341	Nonresident: 129
Fairbanks	30%	
Anchorage	38%	
Rest of Alaska	32%	
Outside		100%

DENALI HIGHWAY QUESTIONNAIRE RESULTS

1. Which end of the Denali Highway did you start from?

Resident: Replies 344 Nonresident: Replies 129

Paxson	55%	53%
Cantwell	45%	47%

2. Did you drive the entire route?

Resident: Replies 336 Nonresident: Replies 129

Yes	71%	88%
No	29%	12%

3. How did you travel the Denali Highway?

Resident: Replies 346 Nonresident: Replies 129

Automobile	49%	42%
Commercial Vehicle	2%	1%
Camper/Travel		
Trailer	39%	46%
Other*	10%	11%

* Includes truck, pickup, van, private bus, jeep, motorcycle, bicycle, hitchhike.

4. Did you or will you camp out along the Denali Highway?

Resident: Replies 339 Nonresident 129

Yes	79%	72%
No	21%	28%
Tangle Lakes (Camper)	36%	40%

5. How long was your stay along the Denali Highway?

Resident: Replies 342 Nonresident: Replies 129

<u>Campers</u>		
1 day	21%	20%
1-3 days	54%	51%
4 or more	25%	29%
not specified	0.00%	0.00%

6. What was your reason for traveling this route?

Resident: Replies 344 Nonresident: Replies 129

Business	7%	5%
Hunt & Fish	57%	32%
Pleasure	56%	57%
As Alternate	11%	24%
Other*	12%	23%

- * Included picking berries (14); route to McKinley (13); scenery (12); visit friends and relatives (15); sightseeing (14); Summer University field study (4); visit gold claim (3); prospecting (2); Kiyaking (2); relax (2); mining (1); fossils (1); wildlife (1); access to Alaska Range (1); canoe trip (1); vacationing (1); scenic route from Delta Junction to Fairbanks (1); practice for Tibet to Afghanistan unicycle race (1).

7. Did you pursue any specific recreational activity?

Resident: Replies Yes: 293	Nonresident: Replies Yes: 113
Fishing 73%	54%
Rock Hunting 12%	24%
Photography 16%	73%
Other 15%	22%
Hunting 16%	4%
Hiking 26%	24%
Canoeing 13%	12%

8. Did you see any wildlife?

Resident: Replies Yes: 211	Nonresident: Replies Yes: 84
Moose 46%	49%
Bear 12%	17%
Caribou 14%	18%
Ptarmigan 46%	44%
Other* 29%	57%

- * Included: 1. Birds: eagles (35); ducks (20); mew (sea) gulls (7); terns (4); Loons (4); geese (3); curlews (2); hawks (2); ravens (2); whistlers (2); swan (1); swallow (1); falcon (1); snipe (1); sparrow (1); owl (1); spruce grouse (1); semipalmated plover (1); gyrfalcon (1); magpies (1); crane (1); birds (15); waterfowl (3); and little birds (2).
 2. Mammals: ground squirrels (35); beaver (23); procupine (17); fox (12); squirrels (including gophers and chipmunks) (12); otter (7); Dall sheep (7); marmots (5); rabbits (4); lynx (4); shrew (2); wolf (2); martin (1); pika (1); rock coney (1); small game (2); and small mammals (1).
 3. Fish: salmon (3); grayling (1); and fish (1).

9. Would you make the trip again?

Resident: Replies 340	Nonresident: Replies 125
Yes 96%	86%
No 4%	14%

10. How would you rate the following possible developments along the Denali Highway?

Resident: Replies 333	Nonresident: Replies 121
Desirable Undesirable	Desirable Undesirable
Straight. 11% 44%	11% 45%
Widening 24% 36%	21% 36%
Paving 46% 25%	48% 29%

	Desirable	Undesirable	Desirable	Undesirable
Access (side road) construction	7%	6%	7%	5%
Better Stream Access	35%	21%	26%	30%
Improved Campgrounds	44%	16%	41%	20%
Improved Hiking Trails	29%	18%	32%	17%
Improved Air Strips	11%	33%	5%	36%
More Restaurants	13%	38%	9%	48%
More Gas Stations	17%	36%	17%	42%
More Lodges	11%	37%	9%	46%

11. Would you like to see more of the following along the route?

Resident: Replies 321

Nonresident: Replies 120

	Yes	No	Yes	No
Service Stations	19%	64%	19%	62%
Restaurants	12%	65%	7%	63%
Lodges	10%	60%	7%	63%
Campgrounds	42%	43%	41%	44%
Waysides	47%	40%	43%	39%
Other*	9%	29%	11%	23%

* Included in other, yes were: Hiking trails (9); litter barrels (5); toilets (4); signs (4); wildlife (3); dump and water stations (3); picnic areas and tables (2); phones (1); propane (1); canoe routes (1); fish markers (1); grocery store (1); better road (1); rest areas (1); blue skies (1).

Included in other, no were: no asphalt (1); no more traffic (1); no commercial development (1).

12. How would you generally describe your trip along the Denali Highway?

Resident: Replies 334

Nonresident: Replies 124

Spectacular	39%	42%
Interesting	39%	58%
Boring	3%	2%
Pleasant	44%	27%
Disappointing	7%	9%
Other*	8%	13%

* Other included rough (20); beautiful (3); dusty (2); fun (2); rainy (2); poor road condition (1); a revelation (1); very scenic (1); bad weather (1); nice views (1); no wildlife (1); cold and rainy (1); poor weather (1).

13. Had you traveled the Denali Highway before?

Resident: Replies 339

Nonresident: Replies 127

Yes	No
64%	36%

Yes	No
20%	80%

Of yes replies:

1-2 times	17%
3-4 times	7%
more	62%

56%
12%
32%

14. Did you travel away from the highway?

Resident: Replies 338

Nonresident: Replies 121

Yes	227	No	111
	67%		33%

Yes	61	No	60
	50%		47%

On foot:

1/2 mile	13%
1 mile	15%
5 miles	11%
more	6%

26%
18%
7%
5%

By boat:

1/2 mile	2%
1 mile	8%
5 miles	8%
more	9%

2%
3%
10%
7%

Off road vehicle;

1/2 mile	3%
1 mile	4%
5 miles	7%
more	9%

3%
2%
7%

Trail bike:

5 miles	
more	2%

3%

Horse:

5 miles	Less than one half of one percent.
---------	------------------------------------

Airplane:

more	2%
------	----

3%

DENALI HIGHWAY

THE ALASKA DEPARTMENT OF HIGHWAYS INVITES YOUR PARTICIPATION, AS A HIGHWAY USER, IN PLANNING FOR THE FUTURE OF THE DENALI HIGHWAY.

YOU CAN HELP BY ANSWERING A FEW QUESTIONS AND SHARING YOUR VIEWS. BASIC ROUTE INFORMATION IS NECESSARY FOR PLANNING FOR THE MAINTENANCE AND DEVELOPMENT OF THE HIGHWAY CORRIDOR. PLEASE FILL OUT THIS QUESTIONNAIRE AND PLACE IN THE PREPAID ENVELOPE.

Date _____ Number in Party _____

Where are you from? _____

- Which end of the Denali Highway did you start from?
☐ Paxson ☐ Cantwell
- Did you drive the entire route? ☐ Yes
☐ No
- How did you travel the Denali Highway?
☐ Automobile ☐ Camper/Travel Trailer
☐ Commercial Veh. ☐ Other

- Did you or will you camp out along the Denali Highway? ☐ Yes ☐ No

If so, where _____

- How long was your stay along the Denali Hwy?
☐ 1 day ☐ 1 to 3 days ☐ 4 or more days

- What was your reason for traveling this route?

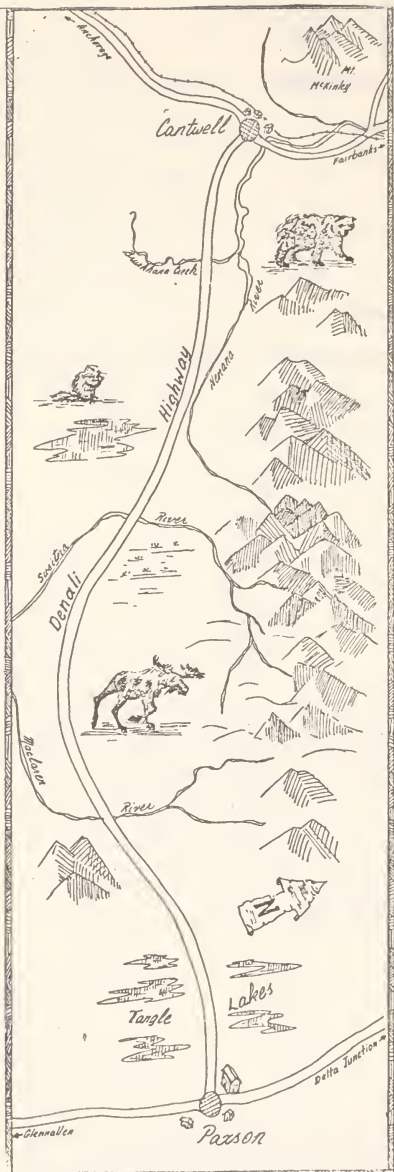
☐ Business or Employment
☐ Hunting or Fishing
☐ Just Driving for Pleasure
☐ As an Alternate to Other Highways
☐ Other _____

- Did you pursue any specific recreational activity? ☐ Yes ☐ No

☐ Fishing ☐ Hunting
☐ Rock Hunting ☐ Hiking
☐ Photography ☐ Canoeing
☐ Other _____

- Did you see any wildlife?

☐ Moose ☐ Caribou
☐ Bear ☐ Ptarmigan
☐ Other _____



9. Would you make the trip again?

☐ Yes ☐ No

11. Would you like to see more of the following along the route?

☐ Yes ☐ No

<input type="checkbox"/>	<input type="checkbox"/>	Service Stations
<input type="checkbox"/>	<input type="checkbox"/>	Restaurants
<input type="checkbox"/>	<input type="checkbox"/>	Lodges
<input type="checkbox"/>	<input type="checkbox"/>	Campgrounds
<input type="checkbox"/>	<input type="checkbox"/>	Wayside/Turnouts
<input type="checkbox"/>	<input type="checkbox"/>	Other

12. How would you generally describe your trip along the Denali Highway?

☐ Spectacular ☐ Pleasant
☐ Interesting ☐ Disappointing
☐ Boring ☐ Other

13. Have you traveled the Denali Highway before?

☐ Yes ☐ No (If yes, approximately how often? _____)

15. Any other comments you would care to make? _____

Your Name (Optional) _____

10. How would you rate the following possible developments along the Denali Highway?

Highway changes (Desirable) (Unnecessary)

Straightening	<input type="checkbox"/>	<input type="checkbox"/>
Widening	<input type="checkbox"/>	<input type="checkbox"/>
Paving	<input type="checkbox"/>	<input type="checkbox"/>
Access (Side) Road Construction	<input type="checkbox"/>	<input type="checkbox"/>
Better Stream Access	<input type="checkbox"/>	<input type="checkbox"/>
Improved Campgrounds	<input type="checkbox"/>	<input type="checkbox"/>
Improved Hiking Trails	<input type="checkbox"/>	<input type="checkbox"/>
Improved Air Strips	<input type="checkbox"/>	<input type="checkbox"/>
More Highway Services:		
Restaurants	<input type="checkbox"/>	<input type="checkbox"/>
Gas Stations	<input type="checkbox"/>	<input type="checkbox"/>
Lodges	<input type="checkbox"/>	<input type="checkbox"/>

14. Did you travel away from the highway?

☐ Yes ☐ No (If yes, approximately how far? ☐ 1/2 mile
☐ 1 mile ☐ 5 miles ☐ more than 5 miles

Method of travel: ☐ On Foot
☐ Boat
☐ Off-Road Vehicle
☐ Trail Bike
☐ Horse
☐ Airplane

THANKS FOR YOUR HELP!

IF YOU HAVE ANY QUESTIONS ABOUT ALASKA'S HIGHWAYS, CALL OR STOP BY:


Alaska Department of Highways
 Interior District
 2301 Peger Road
 Fairbanks, Alaska 99701

Phone No. 452-1911

2-0018

STATE
of ALASKA*MEMORANDUM*TO: [
 Bob Thomas
 Planning Engineer
 Interior District

DATE May 7, 1975

FROM: Mike Tinker 
 Environmental Coordinator
 Interior DistrictSUBJECT: Data from the Questionnaires
 from 1975 from the Taylor
 Highway

During the part of 1975 that the Taylor Highway was open, questionnaires were placed along the route where they could be picked up by travelers and returned to our District office. The questionnaires, a copy of which is attached, were designed, printed and distributed by the Environmental Section. Shortly after the Taylor was opened in 1975, the questionnaires were left along the Taylor at Iliamna, Chicken and Eagle. RMA distributed some to campers in the Walker Fork Campground.

In all 125 questionnaires were made available to travelers and 91 were returned. Travelers were asked to fill out the form and mail it in the postage paid envelope provided. I have been told that for a mail-in questionnaire and the size of our sample, the 91 return is more than enough to validate the data we have received.

The results of this poll will allow us to analyze how Taylor Highway travelers felt about the route. Information on how they traveled and why is included. Perhaps this information can be used in our plans to upgrade the Taylor Highway as well as by those agencies who administer specific needs such as campgrounds.

Following are the statistical results of the questionnaire.

MT/ttc

TAYLOR HIGHWAY -



THE ALASKA DEPARTMENT OF HIGHWAYS INVITES YOUR PARTICIPATION, AS A HIGHWAY USER, IN PLANNING FOR THE FUTURE OF THE TAYLOR HIGHWAY. YOU CAN HELP BY ANSWERING A FEW QUESTIONS AND SHARING YOUR VIEWS. BASIC ROUTE INFORMATION IS NECESSARY FOR PLANNING THE MAINTENANCE AND DEVELOPMENT OF THE HIGHWAY CORRIDOR. PLEASE FILL OUT THIS QUESTIONNAIRE AND PLACE IN THE PREPAID ENVELOPE.

Date _____ Number in Party _____ Where Are You From _____

1. How did you travel the Taylor Highway? 2. Did you or will you camp out along the Taylor Highway?
- ☐ Automobile
☐ Camper/Travel Trailer
☐ Commercial Vehicle
☐ Other _____
- ☐ Yes ☐ No
 If so, where _____

3. What was your reason for traveling the Taylor Highway?

☐ Business or Employment
☐ As an alternate route to the Alaska Highway
☐ Hunting or Fishing
☐ Visiting Dawson City, Y.T.
☐ Visiting Eagle
☐ Just driving for pleasure
☐ Other _____

4. How long was your (or will you) stay along the Taylor Highway? ☐ Less than 1 day,
☐ 1 to 3 days, ☐ 3 to 7 days, ☐ more than 7 days

5. Did you pursue any specific recreational Activity? ☐ Yes ☐ No

<input type="checkbox"/> Fishing	<input type="checkbox"/> Gold Panning
<input type="checkbox"/> Rock Hunting	<input type="checkbox"/> Hunting
<input type="checkbox"/> Photography	<input type="checkbox"/> Hiking
<input type="checkbox"/> Canoeing	<input type="checkbox"/> Other

6. Did you see any wildlife?

<input type="checkbox"/> Moose
<input type="checkbox"/> Caribou
<input type="checkbox"/> Bear
<input type="checkbox"/> Ptarmigan
<input type="checkbox"/> Wolf
<input type="checkbox"/> Other

7. Would you like to see the Taylor Highway remain as it is? ☐ Yes ☐ No

If no, what type of changes would you like to see? ☐ YES ☐ NO

<input type="checkbox"/>	<input type="checkbox"/>	Replace narrow bridges
<input type="checkbox"/>	<input type="checkbox"/>	Widen the roadway
<input type="checkbox"/>	<input type="checkbox"/>	Pave the roadway
<input type="checkbox"/>	<input type="checkbox"/>	Leave the Taylor as is
<input type="checkbox"/>	<input type="checkbox"/>	Eliminate sharp curves
<input type="checkbox"/>	<input type="checkbox"/>	Eliminate steep grades

9. How would you generally describe your trip over the Taylor Highway?

<input type="checkbox"/>	Spectacular
<input type="checkbox"/>	Pleasant
<input type="checkbox"/>	Interesting
<input type="checkbox"/>	Disappointing
<input type="checkbox"/>	Boring
<input type="checkbox"/>	Other

8. Would you like to see more of the following along the route?

<input type="checkbox"/> YES	<input type="checkbox"/> NO	
<input type="checkbox"/>	<input type="checkbox"/>	Service Stations
<input type="checkbox"/>	<input type="checkbox"/>	Restaurants
<input type="checkbox"/>	<input type="checkbox"/>	Lodges
<input type="checkbox"/>	<input type="checkbox"/>	Campgrounds
<input type="checkbox"/>	<input type="checkbox"/>	Wayside/Turnouts
<input type="checkbox"/>	<input type="checkbox"/>	Other

10. Would you make the trip again?

☐ Yes ☐ No

11. At which end of the Taylor did you begin your trip?

<input type="checkbox"/>	Tetlin Jct. (Alaska Highway)
<input type="checkbox"/>	Boundary
<input type="checkbox"/>	Eagle

12. Any other comments you would care to make?

Your Name (Optional) _____

THANKS FOR YOUR HELP!

IF YOU HAVE ANY QUESTIONS ABOUT ALASKA'S HIGHWAYS, CALL OR STOP BY:

Alaska Department of Highways
Interior District
2301 Peger Road
Fairbanks, Alaska 99701

Phone No. 452-1911

General Information

Date of Travel	Resident (44)	Nonresident (47)	Total (91)	Monthly
June 1-7	2%	6%	5%	
June 8-14	11%	2%	7%	39%
June 15-21	16%	11%	13%	
June 22-28	14%	13%	13%	
(June)		2%	1%	
June 29-July 5	1%	5%	13%	
July 6-12	5%	17%	11%	46%
July 13-19	9%	11%	10%	
July 20-26	11%	11%	11%	
(July)		2%	1%	
July 27-August 2	5%	4%	5%	
August 3-9		2%	1%	
August 10-16	2%		1%	10%
August 24-30	5%		2%	
August 31-September 6		2%	1%	
September 7-13	2%		1%	5%
September 14-20	2%		1%	
Many Trips	2%		1%	
No Date		2%	1%	

Number in Party

Resident Response: 44

Nonresident Response: 47

1-2	52%	55%
3-4	30%	30%
More	18%	13%
No Reply		2%

Where are you from?

Resident Response

Fairbanks	23%
Anchorage	39%
Other in Alaska	34%
Not specified	4%

1. How did you travel the Taylor Highway?

	Resident	Nonresident
Automobile ^a .	59%	45%
Camper/Travel Trailer	20%	49%
Commercial Vehicle	16%	
Other ^b .	2%	6%
No answer	2%	

a. Automobile included pickup, jeep, truck, and State vehicle.

b. Other included back packing, hiking, and hitchhiking.

2. Did you or will you camp out along the Taylor Highway?

	Resident	Nonresident
Yes	64%	68%
No	34%	30%
No Answer	2%	2%
(Location)		
Walker's Fork	39%	28%
Eagle	21%	22%
Forty Mile River	11%	6%
Chicken	11%	3%
Boundary		13%
Liberty-Off Road	4%	9%
American Campground	4%	6%
Jack Wade	7%	
Campgrounds		6%
Dennison Fork	4%	
Mosquito Fork	4%	
South Fork River	4%	
Gravel Pit	4%	
West Fork Wayside		3%
High Country		3%
Roadside		3%
Not Specified	4%	

3. What was your reason for traveling the Taylor Highway?

	Resident: 44	Nonresident: 47
Business	36%	4%
Alternate to Alaska Highway	7%	28%
Hunting or Fishing	16%	31%
Visit Dawson City	34%	0%
Visit Eagle	34%	13%
Pleasure	16%	13%
Other		
Future Home	2%	
Live in Chicken	2%	
Visiting Relatives/Friends	2%	4%
Gold Panning	2%	4%
Mining	7%	
Prospecting for Gold		2%
Sightseeing/Vacation		4%

4. How long was your (or will you) stay along the Taylor Highway?

	Resident: 44	Nonresident: 47
Less than 1 day	4%	13%
1-3 days	23%	51%
3-7 days	25%	19%
More than 7 days	48%	19%

5. Did you pursue any specific recreational activity?

	Resident	Nonresident
Yes	66%	68%
No	30%	30%
No answer	4%	2%
Of Yes Answers:		
Fishing	45%	41%
Rock Hunting	17%	38%
Photography	55%	56%
Canoeing	3%	6%
Gold Panning	62%	63%
Hunting	17%	
Hiking	31%	31%
Other	10%	9%
Of Other:		
Dredging	3%	
Camping	3%	
Wild Flower Identification		3%
Driving		3%
Exploring Gold Dredge		3%

6. Did you see any wildlife?

	Resident	Nonresident
Yes	50%	34%
No and no answer	50%	66%
Of Yes:		
Moose	64%	44%
Caribou	9%	13%
Bear	41%	31%
Ptarmigan	23%	19%
Wolf	32%	6%
Other:		
Porcupine	9%	19%
Birds	14%	
Fox	14%	
Rabbits/Hare	14%	6%
Dall Sheep		13%
Shrew		6%
Small black animal		6%
Squirrel	5%	
Weasels	5%	

7. Would you like to see the Taylor Highway remain as it is?

	Resident	Nonresident
Yes	53%	47%
No	45%	53%
No answer	2%	
Of "No" Responses		
Replace Narrow Bridges		
Yes	50%	40%
No	15%	12%
Widen Roadway		
Yes	80%	64%
No	10%	4%
Pave Roadway		
Yes	10%	40%
No	15%	16%
Leave Taylor as is		
Yes	0%	0%
No	100%	100%
Eliminate Sharp Curves		
Yes	65%	28%
No	10%	12%

Eliminate Steep Grades

Yes	45%	32%
No	10%	12%

Other:

Smooth Bumps		12%
Eliminate Chuck Holes and Dangerous Washouts	10%	
Rest Areas for Cooling Brakes		4%
Get rid of Sea Land Trucks		4%

8. Would you like to see more of the following along the route?

	Resident	Nonresident
No answer:	7%	9%
Of Responses:		
Service Stations		
Yes	22%	28%
No	41%	37%
Restaurants		
Yes	7%	12%
No	44%	44%
Lodges		
Yes	12%	14%
No	44%	40%
Campgrounds		
Yes	22%	44%
No	32%	28%
Waysides/Turnouts		
Yes	51%	51%
No	24%	23%
Other -- No	24%	26%
Identify Sites for Drinking Water	2%	
Repair Shop	2%	
Small Grocery	2%	2%
Bars		2%
Wildlife		2%
More Rest Rooms		2%

9. How would you generally describe your trip over the Taylor Highway?

	Resident	Nonresident
No answer	2%	2%
Of Responses:		
Spectacular	47%	48%

	Resident	Nonresident
Pleasant	44%	35%
Interesting	33%	37%
Disappointing	2%	2%
Boring	7%	
Other:		
Difficult	2%	
Hard on Nerves	2%	
Tiring		2%
Bumper		2%
Spent Entire Trip Dodging		
Rocks and Holes		2%
Many Washouts--Cautions	2%	
Dangerous		2%
Hungry		2%
If Maintained could be		
Pleasant		2%
Scenic		2%
Hitchhiking is Poor		2%

10. Would you make the trip again?

	Resident	Nonresident
Yes	95%	83%
No		9%
Maybe		2%
No Answer	5%	6%

11. At which end of the Taylor did you begin your trip?

	Resident	Nonresident
Tetlin Junction	84%	51%
Boundary	8%	45%
Eagle	6%	2%
No answer	2%	2%

TAYLOR HIGHWAY

TETLIN JUNCTION to CANADIAN BORDER

RECONNAISSANCE REPORT

RS-0785(5)

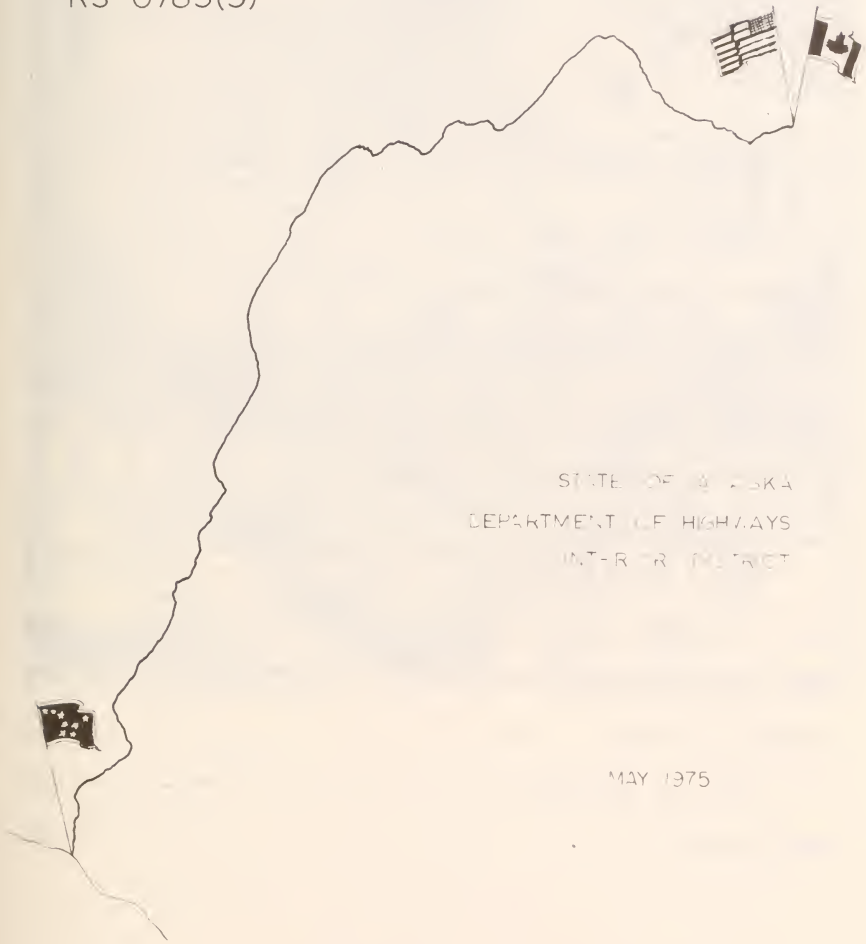
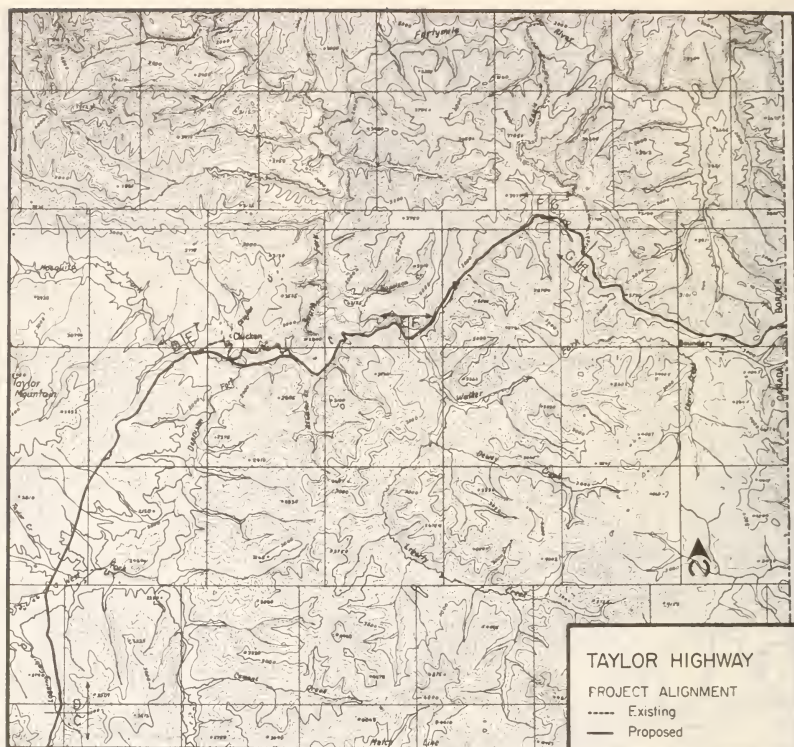


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CHAPTER 1

1. INTRODUCTION

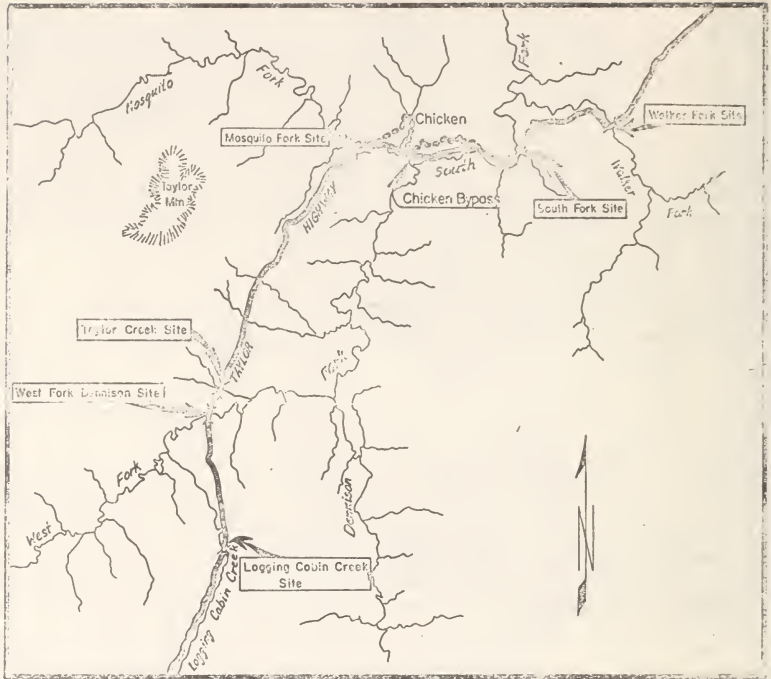
The purpose of this study is to investigate the present and projected future usage of the highway and to recommend a location and standard of improvement which will provide adequate safety and convenience to the traveling public and also meet the requirements of economic factors, environmental considerations, soil conditions and maintenance problems.

Study Location

The study area is located along the Taylor Highway from the existing gravel bridge at Taylor Creek to the Canadian Border and prepare a high quality gravel traveling surface. Early in the study letters were sent to numerous groups and agencies asking for their input on the proposal. Most of the comments received were in agreement that extensive line changes should be avoided and improvements limited to upgrading the existing highway to an acceptable standard. As a result this study deals only with a narrow corridor along the existing Taylor Highway.

A separate study was made by the Department of Highways in 1970-72 which dealt with proposals to replace all of the major bridges along the Taylor Highway between Tetlin Junction and the Canadian Border. The recommendations resulting from this detailed study are set forth in Taylor Bridges Replacement Report, Alaska Department of Highways, 1972. This report covers bridge sites and approaches at the following streams (See next page):

- Logging Cabin Creek
- West Fork
- Taylor Creek
- Mosquito Fork
- South Fork
- Walker Fork



TAYLOR HIGHWAY BRIDGES

Also, an extensive change in alignment through the Chicken area was recommended. Since all of the above locations have been thoroughly studied earlier, they are treated as exceptions to this current Taylor Highway study. A total of 11.4 miles of roadway is covered in the earlier report, leaving 97.3 miles to be treated in this report.

History

Gold was discovered early in the Fortymile region, and much of the area's history is associated with the mining of gold. It was 1886, more than a decade before the big rush to Dawson. Her gold was discovered at the Mill Creek Fork of the Fortymile River. Miners had been panned throughout the area. Presumably the influx of miners came to the Fortymile country in the early 1900's when gold production in the Klondike began to decline. Mining activity in the Fortymile has continued in varying degrees right up to the present time. In 1907 gold dredges were introduced to the area. Although none are now in operation, dredges may still be seen on Chicken Creek, Mosquito Fork, Jack Wade Creek and Walker Fork.

Transportation into the Fortymile area was at first limited to river travel with the bulk of supplies coming through Dawson City. An overland route to the coast was established with the construction of the Valdez to Eagle telegraph line near the turn of the century. This route was used to the north of the present Taylor Highway and was not suitable for extensive freight hauling. Other overland routes were used later, most notably a winter trail up Porcupine Creek and down the Dennison River to Chicken.

It was not until 1946 that the Alaska Road Commission began work on the Taylor Highway to provide all-weather service to the Fortymile country and the town of Eagle. Nearly 10 years were required to complete the road from Tetlin Junction to Eagle.

The portion covered in this report has been the most heavily used part of the Taylor Highway, usually on a seasonal basis. The highway has been maintained through the winter on occasion, specifically in 1969-70 when truck traffic from the Clinton Creek, Y.T., asbestos mine was making several trips over the route each day.

Most of the existing highway does not have an adequate running surface, and the roadway tends to break up badly under heavy traffic.

In 1973 a gravel overlay was applied to the first 30 miles of the Taylor Highway in an effort to beef up the traveling surface. When the asbestos haul from Clinton Creek was resumed in the summer of 1974, it was apparent that even the

newly surfaced section of the highway could not stand up under this type of traffic.

Importance

The Taylor Highway is presently used primarily by tourists traveling to or from Alaska and by Alaskans on recreational outings. The routing through Dawson City is very attractive as an alternative to the Alaska Highway, and many tourists travel to Alaska on one of these routes and make the return trip on the other. An improved Taylor Highway will undoubtedly increase this type of usage.

The Taylor Highway still maintains its importance as an access to mining areas. Although present operations are small, the amount of mining activity has increased significantly with recent rises in gold prices.

The Taylor Highway provides the only surface access to the vast Fortymile country which has much to offer in the way of recreational opportunities. The hunting of caribou has been the most popular over the years; however, a recent decline in the Fortymile caribou herd has forced greater restrictions on caribou hunting in this region. Moose and bear also attract hunters to the Fortymile country.

The river system is the area's greatest recreational asset. Fishing is generally good, and the variety of float trips is becoming increasingly popular. A highlight of these float trips is the exploration of early mining areas.

The entire Fortymile River system is under study for designation as a wild river. The Taylor Highway would complement such a designation since the highway provides access to the rivers at several points but is otherwise generally located away from the rivers.

Extensive geologic exploration has been done in the Fortymile region in recent years. Although gold has been most sought after, a wide variety of minerals is known to be present in the area. The asbestos mine at Clinton Creek, Y.T., is an example of the type of mineral development that could take place within the area.

The future importance of the Taylor Highway is also dependent on developments in the Eagle area and in the Dawson City area of the Yukon Territory. The town of Eagle has begun to grow in population after years of decline. This could be a significant trend in terms of future use of the Taylor Highway.

Method of Study

In May of 1970 aerial photography of the entire Taylor Highway was taken at a scale of 1" = 1000'. This photography was the primary source of information used in formulating the proposed improvement. In addition, the original plan and profile from the 1946-55 construction of the Taylor Highway was available for about 75 of the 169 miles studied in this report. These original plans were very helpful in identifying deficiencies in the existing highway and in determining the extent of necessary corrective measures.

Several field trips were made by members of the Alaska Department of Transportation and the Alaska Department of Game and Fish to develop a preliminary improvement plan.

In September of 1973 an interdisciplinary team consisting of representatives from the following agencies traveled over the route:

U.S. Bureau of Land Management
Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Health and Social Services
Alaska Department of Highways

The study conducted by the team was to determine the scope of the improvements should be. While greatest concern was shown for the retention of the scenic quality of the Taylor Highway and other environmental considerations, still the safety aspects of the improvement must be given a high priority. The proposal set forth in this report is an attempt to satisfy both of these primary considerations.

The only actual field survey work done on this project was a preliminary survey of the one major line change recommendation at Mile 76.6. All other information consists of estimates taken from the aerial photography, the original plan and profile and field inspections. Numerous adjustments can be expected in the location and design stages of this project after more accurate surveys are completed. Such changes should be confined to the design details rather than major changes.

The proposed alignment has been plotted on the aerial photography and the original plan and profile mentioned above. Due to the length of the project, these items are too bulky to be included in this report. They are, however, available for inspection at the Interior District office of the Department of Highways.

CHAPTER II

ROADWAY REQUIREMENTS

Present Deficiencies

The existing Taylor Highway is inadequate in several respects, some of which are listed below:

1. Lack of proper stopping sight distance. There are numerous locations along the highway where hidden dips, short vertical curves or sharp horizontal curves prevent drivers from seeing hazards in time to come to a safe stop.
2. Narrow roadway. Most of the existing highway averages 20 to 22 feet in width. The large recreational vehicles and truck trailers seen on the highway today often have difficulty when meeting on this narrow surface.
3. Lack of passing zones. There are long sections of the existing highway where forward visibility is too restricted to permit passing movement.
4. Inadequate traveling surface. As mentioned on Page 15, the present surface of the highway does not hold up under heavy traffic, particularly in the spring and during rainy seasons. Severe dust conditions prevail in dry weather.
5. Lack of guard rail. There is presently no guard rail on the Taylor Highway, although numerous areas clearly warrant its installation.
6. Excessive curvature. The extent of curvature on the existing roadway is covered in the next section of this report under "route description". This winding alignment tends to aggravate the other deficiencies listed above.
7. Unscreened material sources. Scores of old material sources are immediately adjacent to the highway. Proper location of new sources, and rehabilitation of the old sites are a part of the improvement plan.

8. Lack of rest areas, campgrounds and service facilities. Although these are not all within the realm of highway improvement, still they are problems often commented on by Taylor Highway travelers.

While the above deficiencies may be tolerable with low traffic volumes, they become hazardous as traffic increases.

Traffic

Current traffic counts on the Taylor Highway show an Average Daily Traffic figure of 75 vehicles. Projections for the year 1995 give an ADT of 300.

Design Criteria

Taking into consideration the above traffic figures, the following criteria would bring the Taylor Highway to minimal secondary standards.

Roadway Width	28 ft.	
Design Speed	40 mph	
	<u>Absolute</u>	<u>Desirable</u>
Curvature (maximum)	18°	9°
Grade (maximum)	10%	7%
Minimum Stopping Sight Distance	300'	
Distance Between Reversing Curves	300'	
Right-of-Way Width	100'	200'

In many areas the proposed improvements will meet higher standards. Specifically, roadway Sections B, D, F and H can probably be designed to meet the requirements of a 50 mph design speed without increasing construction costs.

Maintenance

Maintenance problems along the Taylor Highway have been mostly due to the inadequate running surface of the existing highway. This surface breaks up quickly during spring thaw, heavy rains or under heavy traffic loads. Sources of material for maintenance purposes have been a problem also. During original construction of the Taylor Highway and for years afterward, material was taken randomly from numerous sources immediately adjacent to the roadway. The resulting scars are a main point of contention with those concerned with the scenic character of the Taylor Highway. Wherever feasible these scars should be eliminated by reseeding or some other type of rehabilitation. Also, new material sources that will be adequate for construction and future maintenance must be obtained in locations that will have a minimal visual impact from the roadway.

Snow drifting has been somewhat of a problem in the alpine areas. This has largely been corrected in the Mt. Fairplay area by flattening the back slopes over the years. The improvement through these areas should be designed with similarly flat back slopes.

Glaciering has not been a major problem along the highway, but the proposed alignment has been located so as to eliminate the few icing problems that do occur.

The Department of Highways has one maintenance camp along the studied route at South Fork, Mile 75.1. This is the site of the former South Fork Lodge which was purchased by the State of Alaska in 1972.

CHAPTER III

LOCATION AND ROUTE DESCRIPTION

Climate

The proposed project area lies in the Yukon-Tanana drainage region which is a part of the great interior plateau of Alaska and therefore has a typically sub-arctic climate. The winters are long and cold, with short days in midwinter, and the summers are short but relatively warm and are characterized by nearly continuous daylight for three months in midsummer.

The warmest weather generally occurs in the early part of July and the coldest in the middle of January. The mean precipitation is about 10 1/2 inches, which classifies the region as semiarid, and most of this falls as rain during the summer with a maximum in early August. The largest amount of snow falls in January.

Terrain

As might be expected of such a long route, this project passes through several different types of terrain. The route sometimes follows along the ridge line between drainages, sometimes follows stream valleys and at other times runs across drainage patterns. The terrain is mostly mountainous and sometimes rugged. The Taylor Highway begins at an elevation of 1740 feet above mean sea level at Totlin Junction and climbs to 3600 feet in the Mt. Fairplay area (Mile 34). The roadway descends rapidly from Mt. Fairplay, passes through several miles of rolling hills and finally reaches its lowest point of 1540 feet at South Fork (Mile 75.7).

From Walker Fork (Mile 82) the road begins a gradual climb following the Jack Wade Creek valley and reaching the ridge top at the Eagle junction. From the Eagle junction the highway runs along the top of a high ridge line through an alpine area which affords spectacular views in all directions. Climbing steadily along the ridge, the road finally reaches its highest point of 4150 feet at the Canadian border. This is the highest point on Alaska's highway system with the exception of Dietrich Pass on the Pipeline Haul Road now under construction through the Brooks Range.

Route Description

Since this report covers such a long section of highway, it was decided to break it down into several shorter sections in order to facilitate the discussion of improvement proposals. The route has been divided into eight sections for this purpose. An attempt was made to divide the route so that each section covers an area that presents certain types of problems with respect to terrain, difficulty of construction, foundation conditions or alignment limitations. These sections might also suggest some logical beginning and ending points for the ensuing construction projects.

The eight sections are shown on Pages 1 and 2 of this report and are listed below.

<u>Section</u>	<u>Mileposts</u>	<u>Length in Miles</u>
A	0 to 10	10
B	10 to 23.5	13.5
C	23.5 to 43.3	19.8
D	43.3 to 63.5	20.2
E	63.5 to 82	18.5
F	82 to 91.5	9.5
G	91.5 to 95.7	4.2
H	0 to 13.0	13.0

A mile-to-the-inch map of each section accompanies the discussion of that section. Due to the length of this project and the lack of survey information available on the route, it was not possible to prepare a meaningful plan and profile drawing for inclusion in this report. Existing mileposts are used as reference points in the following discussions. The proposed alignment along with the mileposts has been plotted on 1" = 1000' color aerial photography which is available for inspection at the Interior District highway office.

Section A (Mile 0 to Mile 10)

Beginning at Tetlin Junction, Mile 1302 on the Alaska Highway, the proposed alignment heads northerly following closely along the existing Taylor Highway. The improvement through this area is primarily an attempt to reduce the excessive curvature of the existing roadway. The first 10 miles of the existing road contains 69 curves. 54 of these are 10 degree curves or greater. 30 of the 54 are 15 degree curves or greater. The proposed alignment would reduce the number of curves in this section to 39 with the sharpest being a 10 degree curve. This is accomplished while utilizing much of the existing alignment and making no major route changes.

The greatest deviation from the existing roadway occurs at Mile 8.9 where the proposed line is shifted 450 feet up the

hill in order to eliminate a series of reversing 20 to 25 degree curves. Other deviations do not exceed 70 feet.

At Mile 0.5 the alignment crosses the Haines pipeline at the same point where the existing road crosses. Necessary measures will be taken to protect this high pressure line.

The first 2.5 miles of the highway passes through native lands--a fact which could complicate the right-of-way issue. It would not be possible to achieve a satisfactory alignment through this area without acquiring some new right-of-way; however, deviations from the existing roadway are held to a minimum.

The first 6 miles of the project passes through an area of sand dunes. It should be an area of relatively easy construction even though cuts and fills of 20 feet or more will be encountered.

At Mile 5.1 a turnout should be constructed at the beginning of the trail to Four Mile Lake. This lake is approximately 1/2 mile in diameter and lies about 1/2 mile east of the highway. The lake contains introduced sheefish and silver salmon and is managed by the Sport Fish Division of the Alaska Department of Fish and Game.

At Mile 6.0 the alignment descends from the sand dunes and crosses Porcupine Creek at Mile 6.2. Porcupine Creek contains grayling and is considered good fishing. The stream is presently handled adequately by two 4 foot culverts, and a similar installation is recommended for the new roadway. This is one of only two significant stream crossings covered in this report. All other major streams, with the exception of Jack Wade Creek (Mile 86), have been dealt with in Taylor Bridges Reconnaissance Report, Alaska Department of Highways, 1972.

After crossing the Porcupine Creek the proposed alignment climbs steadily for the next 2 1/2 miles holding very closely to the existing roadway except when flattening sharp curves.

Near Mile 8.5 the existing roadway enters terrain broken by several deep narrow draws and in so doing requires a series of 20 and 25 degree curves. To achieve an acceptable alignment, the new proposal cuts through the narrow ridge at Mile 8.9 and fills across the following draw. This will require short cuts and fills of approximately 40 feet. This line shift also shortens the highway by some 500 feet. The alternative to this line shift is to retain the 20 and 25 degree curves of the existing highway. One problem with the existing alignment is insufficient tangent distance between reversing curves.

At Mile 9.3 the line breaks out onto a smoothly contoured hillside and continues to climb along the existing roadway to the end of Section A at Milepost 10.

Section A is primarily an uphill section as the road climbs from the Tanana Valley to the divide between the Tanana and Dennison Rivers. Grades up to 7 percent are encountered on both the existing and proposed alignments. In checking the original plan and profile for the existing highway it appears that 7 percent was used as a maximum grade.

Since one of the basic purposes of this Taylor Highway Improvement Study is to hold major route changes, little can be done to change the existing alignment. In fact, the new alignment will follow the existing curves with the exception of one place where it will have to increase grades slightly.

What should be done to improve the vertical alignment is to remove the many sudden grade changes and hidden dips of the present roadway and to lengthen vertical curves so as to provide adequate stopping sight distance at all times. This action will increase earthwork quantities for the new construction but will also tend to reduce grades.

Section B (Mile 10 to Mile 23.5)

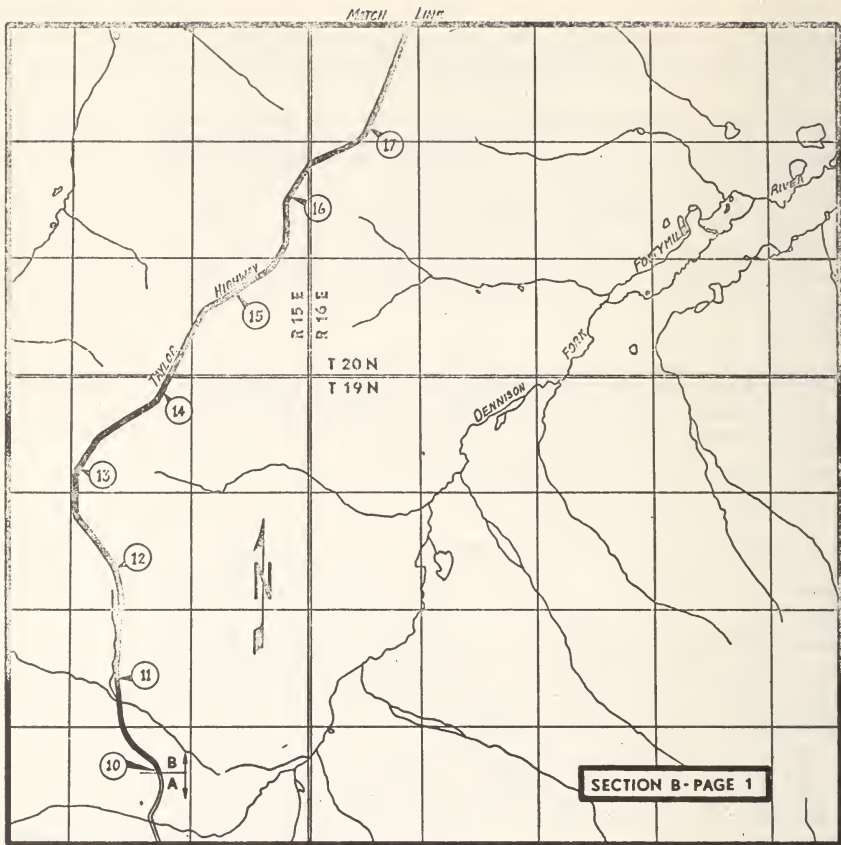
The alignment of the existing Taylor Highway is generally very good. However, in this section, a few minor alignment changes are recommended. At Mile 11.9 the proposed alignment replaces two 4 degree curves in a broken back configuration with a single long 2 degree curve. Likewise at Mile 15.5 a broken back curve situation is replaced by a single curve. These changes can be made by shifting the roadway centerline no more than 25 feet from its present location. At all other locations throughout Section B the proposed alignment coincides with the existing highway.

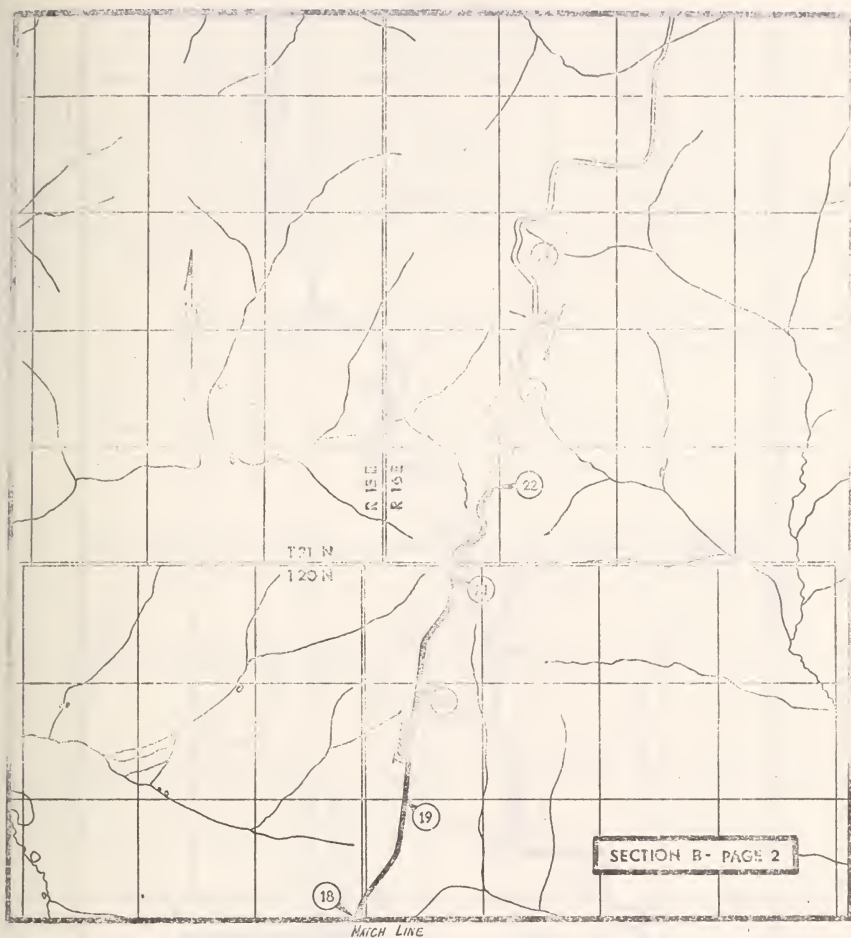
At the following locations along Section B, abrupt vertical curves exist: Mile 12.6, Mile 15.8, Mile 17.5, and Mile 21.3. The hilltops at these locations should be cut down so as to allow longer vertical curves providing adequate stopping sight distance.

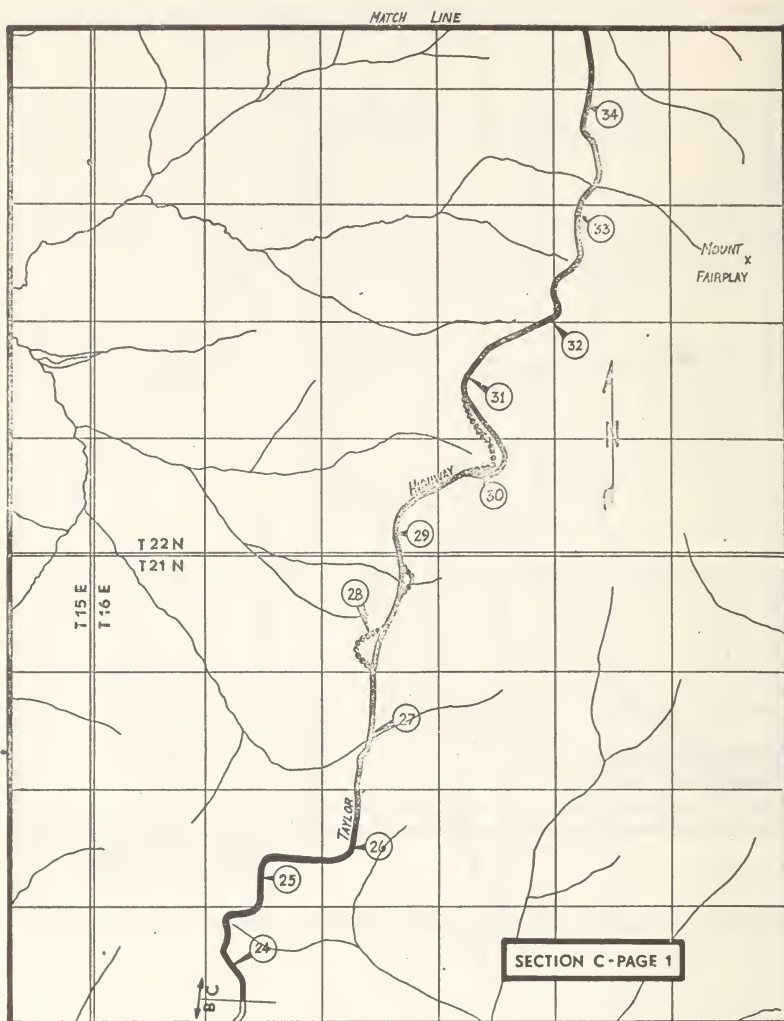
Section C (Mile 23.5 to Mile 43.3)

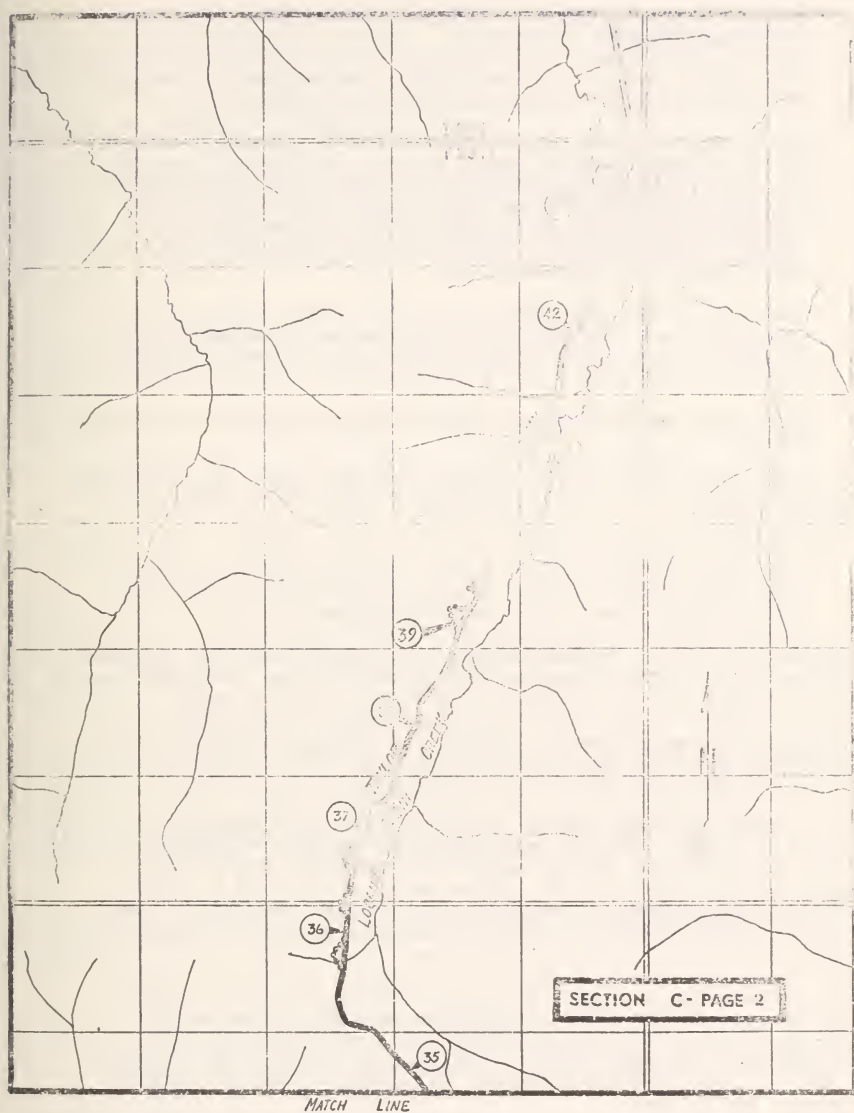
Section C encompasses an area of rough terrain as the Taylor Highway climbs high on Mt. Fairplay and then descends to Logging Cabin Creek. Numerous changes are recommended for this section and are listed below according to milepost locations. An attempt was made to hold changes to a minimum where the highway passes through the alpine area on Mt. Fairplay.

Mile 24.4--Two 15 degree curves are replaced by 9 degree curves. This is accomplished by cutting through









a low ridge and then crossing a shallow draw on a fill of approximately 15 feet.

Mile 26.8--Larger cuts and fills recommended in order to allow proper distance between reversing curves.

Mile 28.4--A line shift here involving greater cuts and fills allows 6 and 7 degree curves to replace 8 and 16 degree curves and provides proper distance between the reversing curves. This shift also places the road through two existing unsightly material sources and should allow rehabilitation of these areas as part of the roadway reconstruction.

Mile 30.2--The alignment is shifted about 300 feet up the hill in order to cross the draw at a location less susceptible to glaciating. Also, the present 16 degree curve is replaced by an 8 degree curve.

Mile 32.0--A 16 degree curve is replaced by a 10 degree curve.

Possible sites for tourist turnouts through this scenic area are as follows: Mile 31.3, Mile 32.3, Mile 33.2, Mile 33.9 and Mile 34.5.

Mile 35.1--This is the location of an existing turnout and informational sign. The sign should be updated as it contains some erroneous information.

Beyond Mile 35 the highway begins to descend from Mt. Fairplay following along the Logging Cabin Creek valley. From Mile 35.8 to Mile 41.1 the roadway traverses a valley wall broken by many deep, narrow gullies. This is the worst part of the existing highway as far as substandard alignment is concerned and will be the most expensive area to bring up to an acceptable standard.

The present roadway through this 5.3 mile area contains 60 curves. Of these 60, 17 are 20 degree curves or greater. 9 of the 17 are 30 degree curves or greater. The sharpest curve encountered is a 57 degree curve at Mile 40.1. The proposed improvement through the area would reduce the total number of curves to 27 with the sharpest being an 18 degree curve.

The improvement proposal involves cutting into the ridge on the approach to each of the gullies and then crossing the gullies on higher fills. Considerable earthwork will be necessary to accomplish this realignment. There are eleven draws to cross through the area with cuts and fills ranging from 10 to 30 feet.

At Mile 42.8 the proposed alignment connects into the first of the Taylor bridge projects. This is a 2500 foot section of highway including a new Logging Cabin Creek bridge and approaches.

Section D (Mile 43.3 to Mile 63.5)

After crossing Logging Cabin Creek the existing Taylor Highway enters an area of very good alignment through rolling hills. This section is characterized by long straightaways--sometimes two miles or more in length. The terrain along the entire length of Section D was burned over by a forest fire in 1966.

The only alignment change recommended for the next 13 miles is the use of a single curve to replace three closely grouped curves at Mile 46.9.

Two more exceptions to this project occur through this area:

1. 1650 feet of line for West Fork Bridge and approaches beginning at Mile 49.4
2. 1150 feet of line for Taylor Creek Bridge and approaches beginning at Mile 50.5

The vertical alignment through this 13 miles is substandard in several locations and should be corrected by heavier cuts and fills to increase stopping sight distance. Most notable of these locations are: Mile 43.9, Mile 52.2, Mile 52.7, and Mile 55.1.

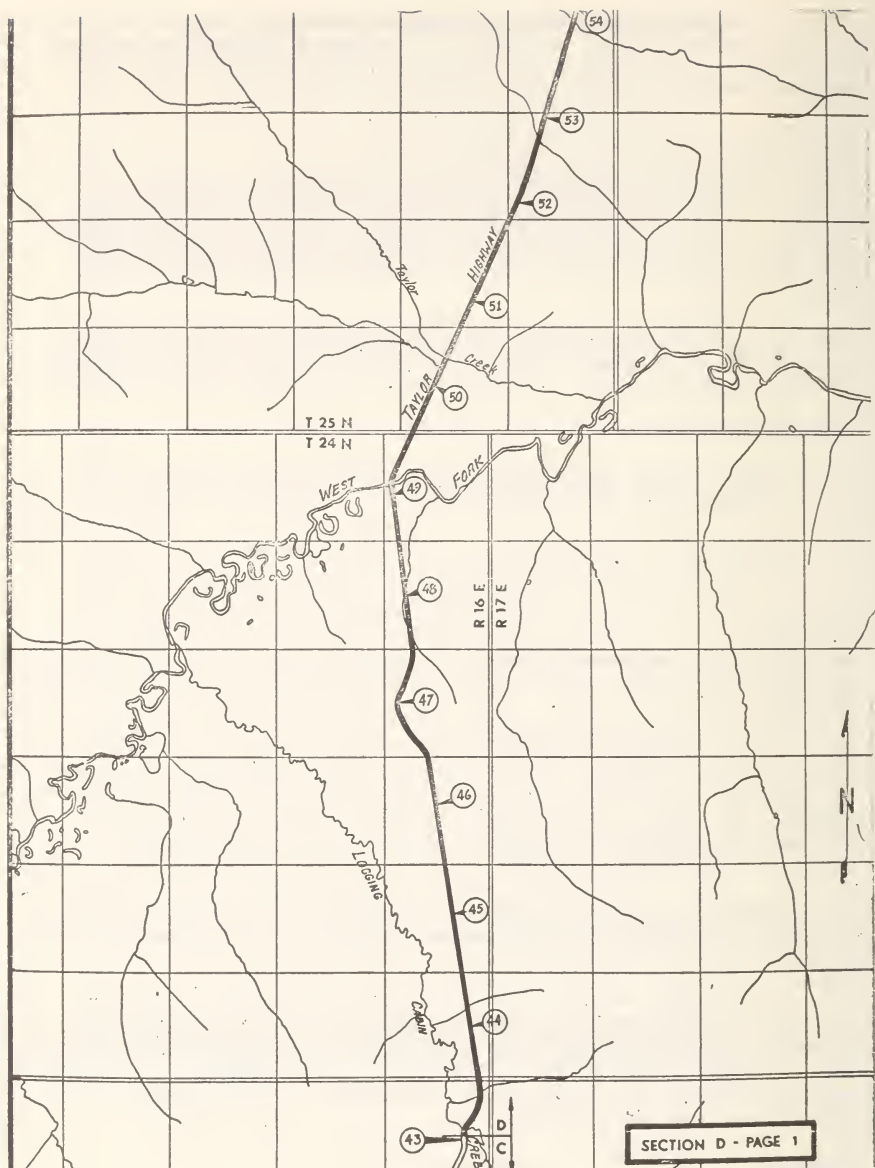
From Mile 57.5 the proposed alignment continues to follow the existing roadway. In the area from Mile 58 to Mile 59 it is recommended that compound curves in the existing roadway be replaced by simple curves. This can be accomplished with minimal deviation from the present roadway location (15 feet or less).

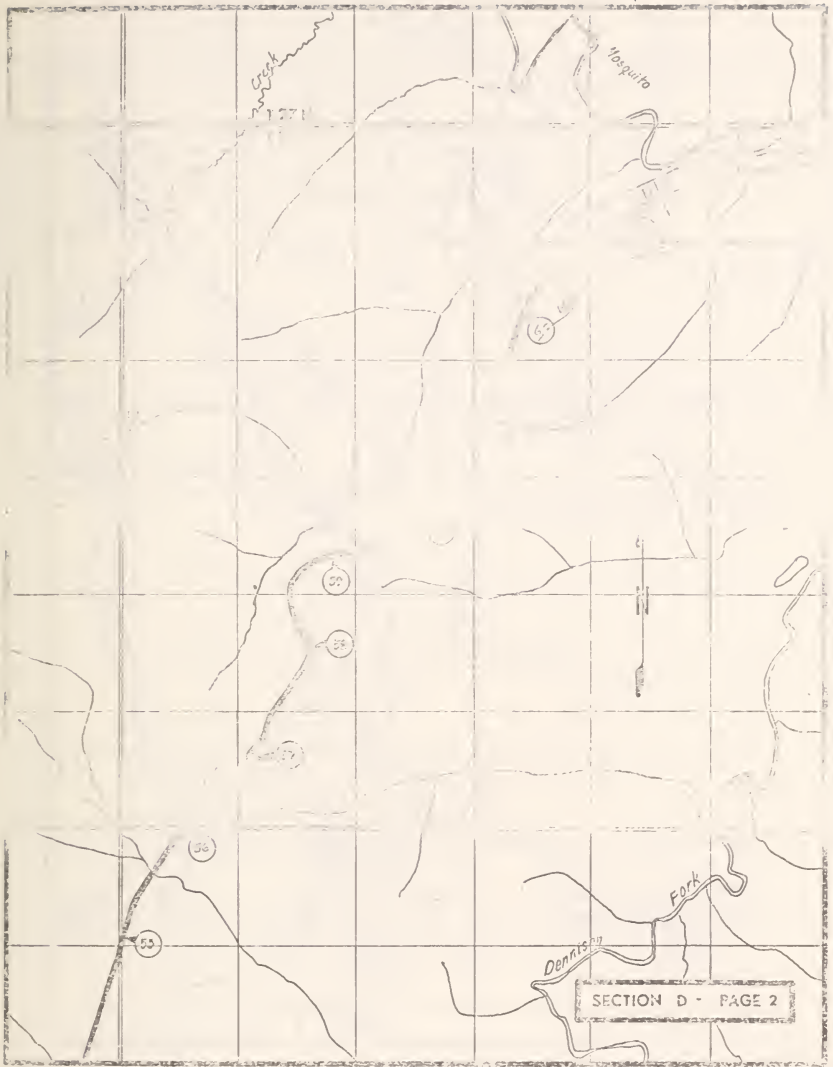
At Mile 60.5 the proposed line is shifted 200 feet right of the existing road and into a cut section. This change is proposed in order to correct an awkward double reversing curve situation. A cut of about 30 feet will be necessary.

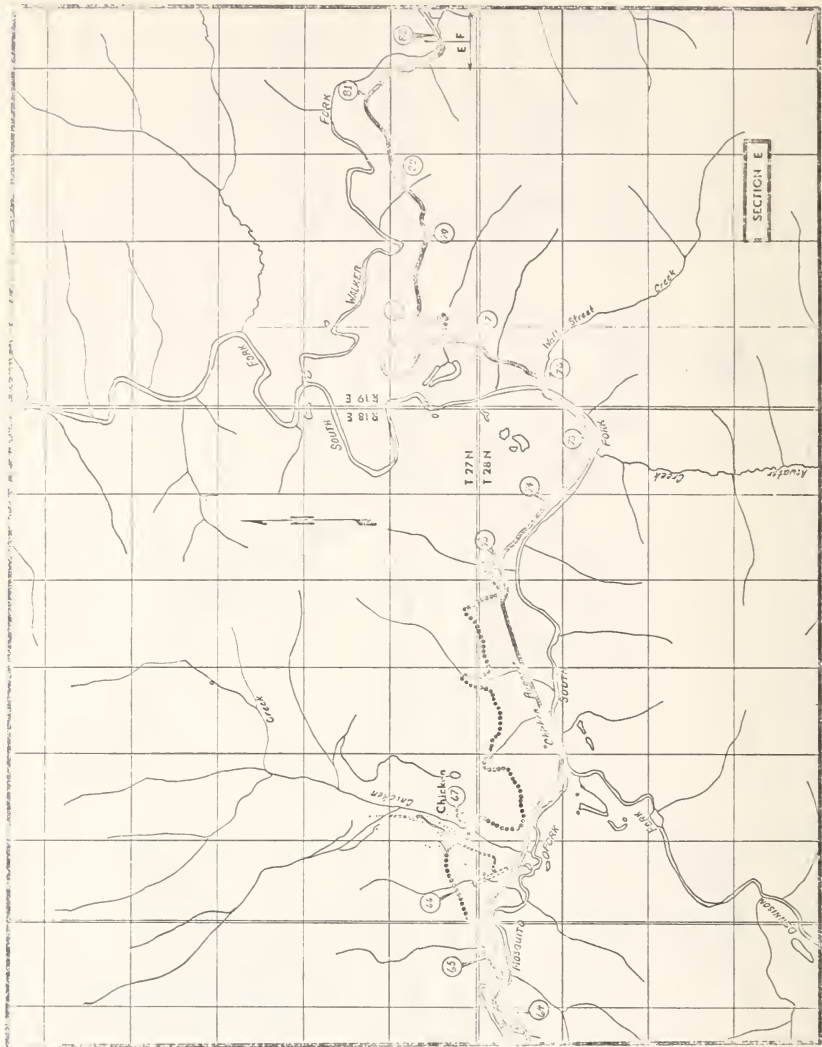
At Mile 63 the proposed line replaces four closely grouped curves on the existing road with two curves and then follows the existing road to Mile 63.5 which is the end of Section D and the beginning of the "Chicken Bypass"--a 9.4 mile exception from this report.

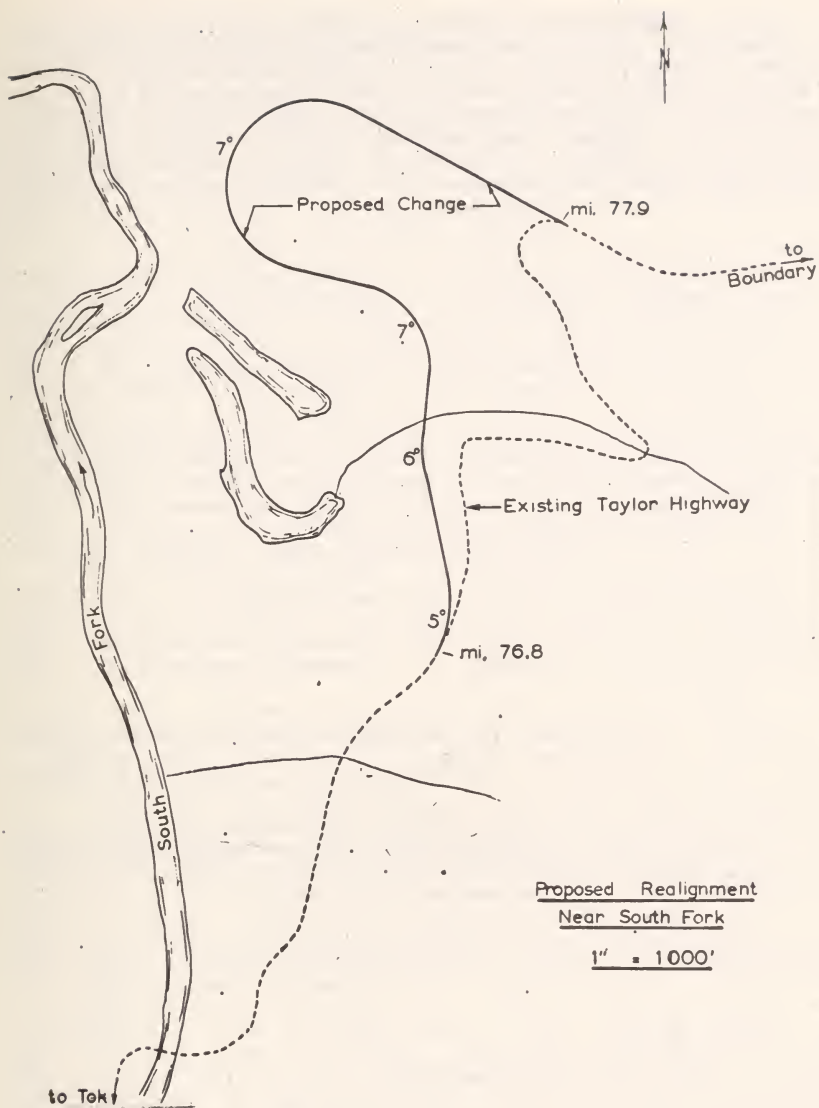
Section E (Mile 63.5 to Mile 82.0)

From the beginning of Section E to Mile 73.0, proposed improvements were covered in the Taylor Bridges report under the "Chicken Bypass" heading.









Proceeding from Mile 73 at the end of the "Chicken Bypass" the proposed line cuts hard into the hillside at Mile 73.1 in order to replace four closely grouped curves of the existing road with two flatter curves. The proposed line rejoins the existing road at Mile 73.4 and follows it closely past the State Highway Department maintenance camp at South Fork, Mile 75.1 and on to Mile 75.4 which is the beginning of the South Fork Bridge project, a 3300 foot exception from this report.

Proceeding from Mile 76.0, the end of the South Fork Bridge project, the proposed improvement follows closely along the existing roadway to Mile 76.8. Here begins the one major line change recommended in this report. The existing road beyond Mile 76.8 follows steeply up the hillside, and within the next 1.3 miles make three very sharp turns. Aerial photo and on-site studies of this area have revealed no possibility of upgrading along the existing alignment without getting into prohibitively large cuts and fills and excessive grades. A rough ground survey of the alternative route shown on the next page was made in June, 1974, and showed that it would be feasible to move the roadway to this new location while maintaining grades and curvature that will be consistent with those encountered on the rest of the improved roadway. One disadvantage of the new proposal is that it adds approximately 2000 feet to the length of the highway. One advantage, in addition to the improved alignment, is the existence of an excellent site midway along the new proposal with a superb view of the South Fork valley.

The proposed line rejoins the existing road at Mile 77.9 and continues to climb along the wall of the Walker Fork valley. At Mile 79.3 the proposed line cuts into the hill above the existing road and then fills across a draw just below the existing road in an effort to flatten three sharp curves. Cutting farther into the hill at this site should also allow the construction of a turnout at Mile 79.3 which will afford a spectacular view of the Walker Fork canyon.

Beyond Mile 79.6 the proposed line begins to descend and follows closely along the existing road all the way to the Walker Fork bridge and the end of Section E. The last of the exceptions is the Walker Fork Bridge project from Mile 81.8 to Mile 82.2.

Section F (Mile 82.0 to Mile 91.5)

Section F is a 9 1/2 mile stretch of roadway following along the Jack Wade Creek valley. It is an area of generally easy grades, good alignment and excellent foundations. The impact of shifts in alignment is not so great through this section since the whole length of the valley has been dug up by a gold dredge leaving piles of gravel across the valley.

Most of the existing roadway through the Jack Wade Creek valley will only need to be widened to meet the standards of the proposed improvement. The one major alignment problem occurs at Mile 86.0 where a horseshoe bend in the creek and a narrowing of the valley forced excessive curvature in the existing roadway. The gold dredge, which mined most of the Jack Wade Creek valley, is also located adjacent to the road at Mile 86. The dredge is in a sad state of repair and has been badly vandalized but continues to be a point of interest to tourists traveling the Taylor Highway.

The proposed alignment would cut across the horseshoe bend at Mile 86 in order to attain an acceptable alignment. This change requires two crossings of Jack Wade Creek, and two small timber bridges are recommended for this purpose. One leg of the existing horseshoe curve could be left open as a tourist turnout and access to the dredge.

From Mile 86.0 to Mile 87.2 the valley becomes too narrow to accommodate a roadway on the valley floor. The existing road traverses the northern valley wall, and the proposed improvement will also follow this location. Some sizeable cuts will be necessary through this area in order to establish the wider roadway on this steep valley wall.

From Mile 87.2 the existing roadway again runs along the valley floor to the end of Section F at Mile 91.5. Improvements through this area will consist of widening and minor shifts to improve alignment.

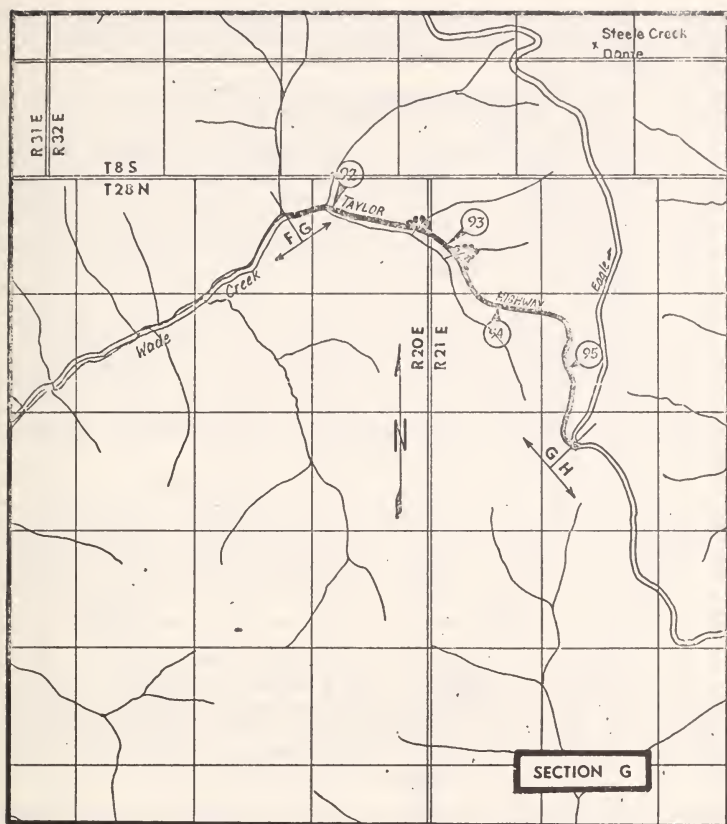
At Mile 89.8 the road crosses Jack Wade Creek. A small timber bridge is recommended for this crossing.

Section G (Mile 91.5 to Mile 95.7)

This 4 1/2 mile stretch of roadway covers the area where the Taylor Highway leaves the floor of the Jack Wade Creek valley and climbs steeply along the hillsides reaching the top of the ridge at the Eagle junction--Mile 95.7. Sustained grades of about 6 percent are encountered throughout this section. There is no opportunity to reduce these grades short of a completely new alignment. No such alternative is considered in this report.

The roadway crosses two deep draws in this section which pose major alignment problems. These occur at Mile 92.7 and Mile 93.2 and are crossed by hairpin type curves on the existing road. To construct curves which meet the standards set forth earlier in this report would require unreasonably large cuts and fills. It is felt that a lower standard of curvature will have to be tolerated at these two locations. Special effort will be necessary to insure motorists will be warned of the hazard created by this excessive curvature combined with the long, steep grade.





Throughout the rest of Section G an alignment meeting standards can be achieved while remaining very close to the existing highway.

Section H (Eagle Junction to Canadian Border)

Section H is the last portion of the highway covered in this report. Some confusion exists as to the name and milepost designation of this section. The Taylor Highway as originally built runs from Tetlin Junction to the town of Eagle on the Yukon River. Existing mileposts along the road are likewise continuous from Tetlin Junction to Eagle. The road from the Eagle junction at Mile 95.7 to Boundary and Dawson City is now more heavily traveled than the portion of the original Taylor Highway from Mile 95.7 to Eagle. When speaking of this route, Alaskans generally include both the original Tetlin Junction to Eagle portion and the spur toward Dawson under the title "Taylor Highway". Such is the case in this report which deals with that portion of the "Taylor Highway" from Tetlin Junction to the Canadian Border.

There are presently no mileposts on Section H. To avoid confusion with the mileposts continuing from Mile 95.7 toward Eagle, Section H is given a new mileage designation of Mile 0 to Mile 13.0. Mile 0 coincides with Mile 95.7 at the Eagle junction, and Mile 13.0 is at the International Boundary.

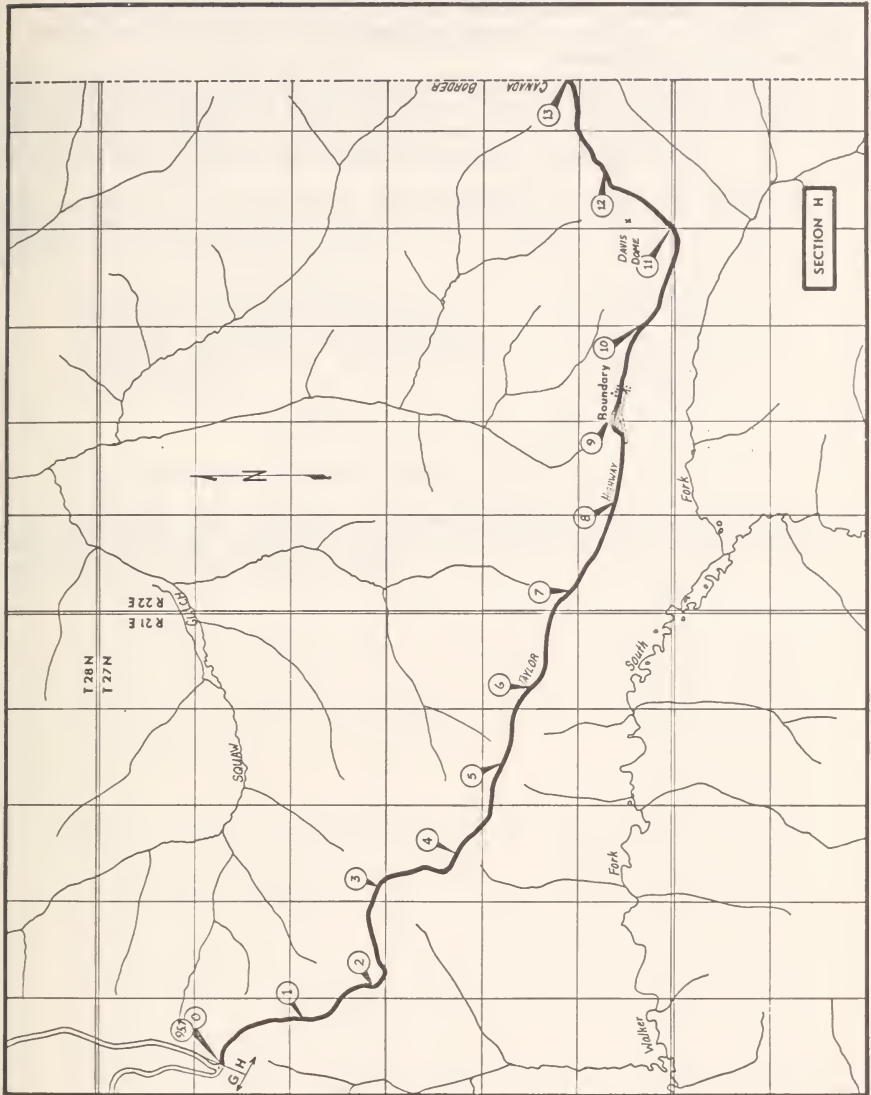
Section H runs along ridge tops through a very scenic alpine area. The existing alignment and grades are generally acceptable and an effort should be made to cause as little disturbance as possible to this area. For the most part, recommended changes consist of flattening the sharper curves and widening along the existing alignment.

At Mile 3.8, a 12 degree curve is recommended to replace the existing 20 degree curve.

At Mile 8.8 the existing highway passes immediately adjacent to the end of the Boundary airstrip. By constructing reversing 8 degree curves beginning near Mile 8.7, the proper airway clearance can be obtained. This line change would rejoin the existing roadway at Mile 9.1.

Just beyond Boundary at Mile 9.3 the existing roadway makes an unnecessary double reversing curve that will be eliminated by the new alignment.

At Mile 11.9 the sharp curve should be flattened considerably. This is an excellent point for a scenic turnout, and such a facility could be placed in the area occupied by the existing curve.



All other changes throughout Section II will only be minor line shifts to reduce curvature and remove small kinks along the existing alignment.

CHAPTER IV

COST ESTIMTES

Cost estimates for the proposed Taylor Highway improvements were prepared by the Department of Highways and are presented in the table below. These figures must be considered rough at best due to lack of accurate ground information.

The estimates were made on the assumption that the improvements would be constructed in five separate projects of approximately 20 miles each.

Planning & Engineering	\$ 900,000
Mobilization & Miscellaneous	500,000
Grading, Drainage & Structures	11,890,000
+ 10% Construction Engineering	1,190,000
Right-of-Way	<u>250,000</u>
TOTAL	\$14,730,000

(Or approximately \$150,000 per mile)

The planning and engineering item includes reconnaissance and preliminary surveys, materials investigation, an environmental assessment and design.

CHAPTER V

OTHER DETERMINANTS

The BPR circular memorandum dated September 15, 1964, provides a list of factors to be considered in choosing a roadway alignment. Each of these factors is covered in the following list. Where the item has no bearing on the route, it is indicated as not applicable.

- a. National Defense: The Taylor Highway could be of great significance in a national emergency since it provides the only alternative to traveling into Alaska over the Alaska Highway. The route also provides the only land access to a large otherwise remote area.
- b. Economic Activity: There are only two road houses on the entire 109 miles of the Taylor Highway covered in this report. The first is at Toffin Junction and caters mainly to traffic on the Alaska Highway. The second is at Boundary, 105 miles away.

The Alaska Department of Highways operates a maintenance camp at South Fork, Mile 75.1, and the BLM maintains a fire guard station at Chicken, Mile 68.0. There is a U.S. Post Office at Chicken and a U.S. Customs station at the international boundary.

Other economic activity consists of small gold mining operations in the summer along Mosquito Fork, South Fork, Walker Fork and Wade Creek. Recent years have seen extensive geological mapping and prospecting in the Fortymile area, and this region is recognized to have significant potential in mineral production.

- c. Employment: All employment along the route is associated with the activities mentioned in (b) above. Total employment along the study corridor is estimated at 30 persons during the summer months. This figure drops to near zero in the winter when all of the operations mentioned in (b) are closed down, with the exception of the Chicken Post Office.

Construction of an all-weather highway could bring year-round employment at the Department of Highways maintenance camp, Boundary Lodge and the U.S. Customs station.

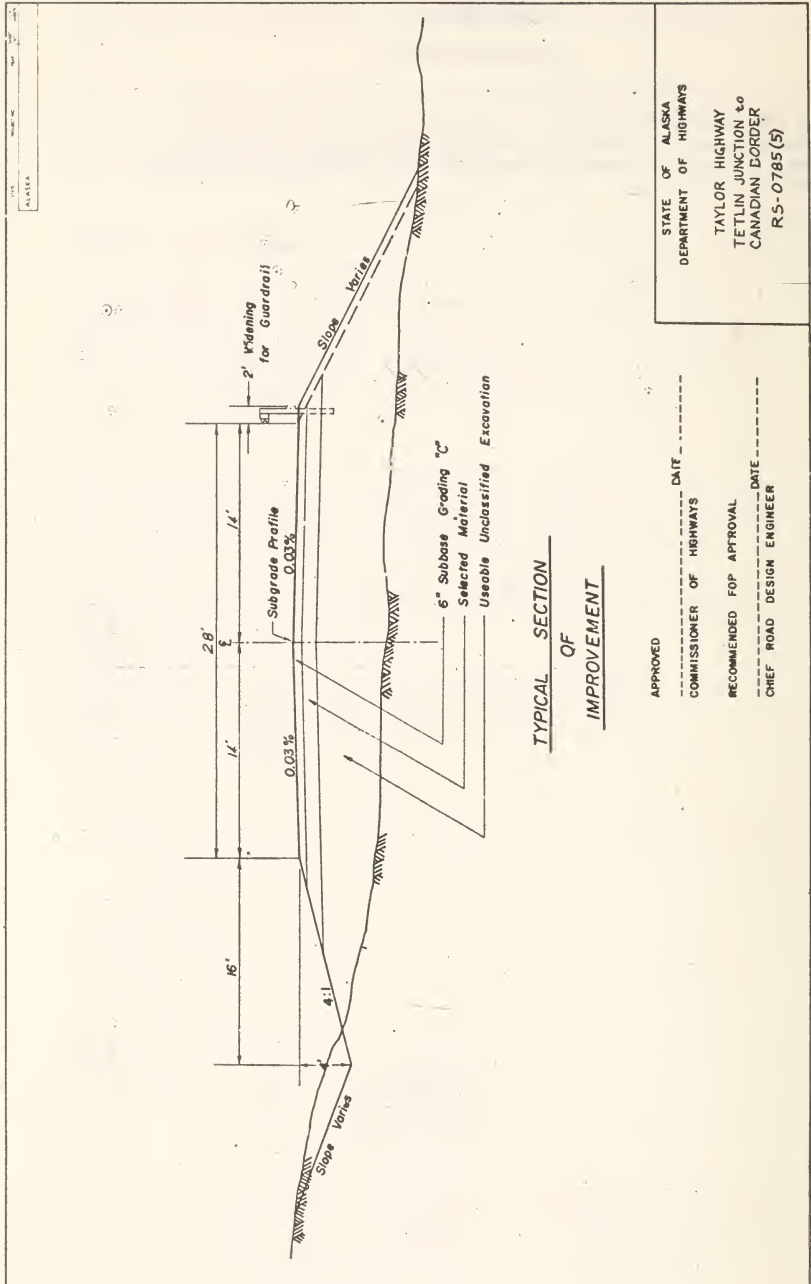
- c. Recreation: Treated in Chapter 1.
- e. Fire Protection: The proposed project would not provide access to any new areas but would improve access and allow more rapid movement of fire fighting equipment within the Fortymile region.
- f. Aesthetics: Covered throughout this report and the Environmental Impact Statement.
- g. Public Utilities: The only utility involved in the project is the military operated Haines pipeline which is crossed about 1/2 mile from the beginning of the project. The proposed improvement would cross the pipeline at the same spot where the existing Taylor Highways crosses. Special measures will be undertaken to protect this high pressure line.
- h. Safety: Covered throughout this report.
- i. Residential Character and Location: There are very few residences along the entire 109 miles of this project. None are immediately adjacent to the highway and most are not even visible to passersby. The proposed project should have no adverse effect on any residence.
- j. Religious Institutions and Practices: This item is not applicable in that no religious institutions or practices would be affected by the proposed project.
- k. Rights and Freedoms of Individuals: The project does not deny nor does it infringe upon the rights or freedoms of the populace in that it does not restrict access to those areas presently served.
- l. Conduct In Financing of Government: Participating Federal funding to the extent of approximately 94% would be available to the proposed project, and thus local tax structures should not be affected to any significant degree.
- m. Conservation: Standard conservation procedures will be undertaken during construction such as erosion control and stream bank protection.
- n. Property Values: Any effect on property values should be favorable; however, it is expected that the effect would be minimal. Most of the land traversed by the highway is a part of the public domain. Most of the private land encountered is in the form of mining claims along Jack Wade Creek.
- o. Replacement Housing: This item is not applicable in that no persons or businesses will be displaced by the proposed project.

- p. Education and Disruption of School District Operations:
There are no schools or school bus routes on the proposed project.
- q. Specific Numbers of Families and Businesses Displaced:
None.
- r. Engineering, Construction and Right-of-Way Costs:
Covered in Chapter IV.
- s. Maintenance of Highway and Other Transportation Facilities:
Covered in Chapter IV.
- t. Use of Highway and Other Transportation Facilities and User Costs: The improved alignment of the proposed project will certainly benefit users by reducing operating costs. This is particularly true of truck traffic; however, benefits in the areas of safety, convenience and ease of maintenance are the primary reasons for the proposed improvement. A detailed user cost study was not undertaken.
- u. Operation of Highway Facilities During Construction and following Completion: Since the Taylor Highway provides the only road access to a vast area, there will inevitably be some traffic disturbances during construction. This problem will be thoroughly analyzed by the project engineer prior to construction, and a detailed plan should be worked out with the contractors to insure minimal road closure time and reduce public inconvenience to an acceptable level.

After completion effects are covered throughout this report and in the Environmental Impact Statement.

CHAPTER VI
RECOMMENDATIONS

It is recommended that the typical section shown on the following page be used in reconstruction of the Taylor Highway along the route described in Chapter III of this report.



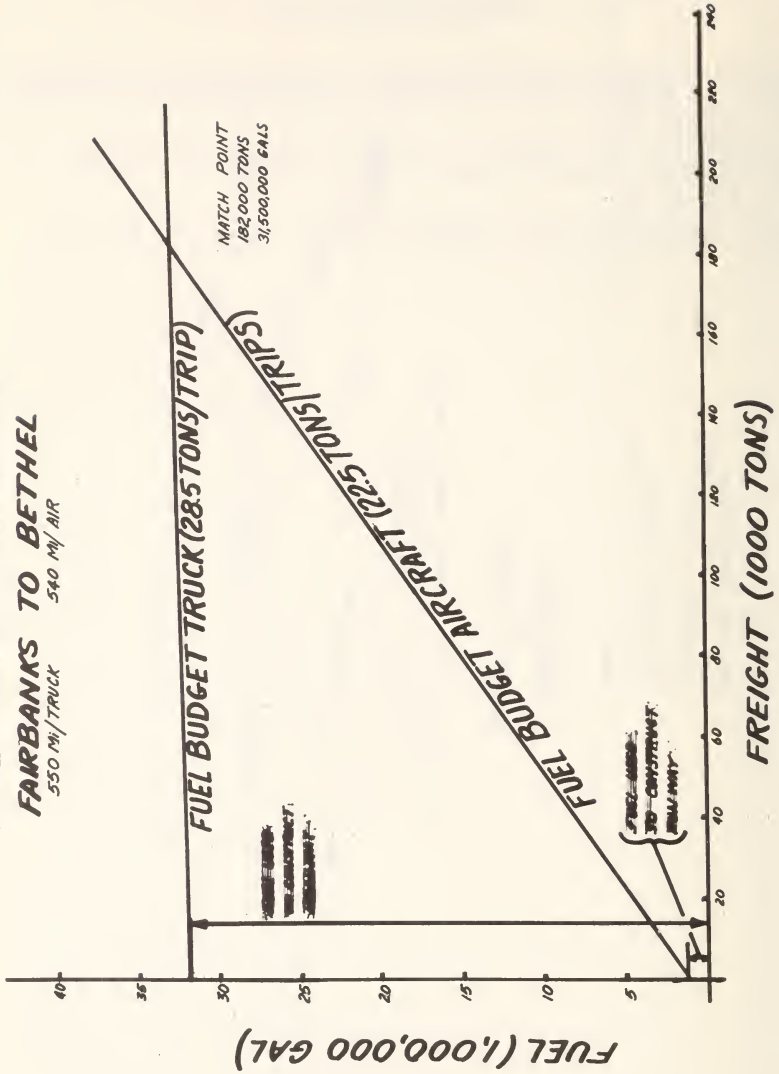
SELECTED REFERENCES

The Gold Placers of the Fortymile, Birch Creek and Fairbanks Regions of Alaska, Louis M. Prindle, U.S. Geological Survey, 1905.

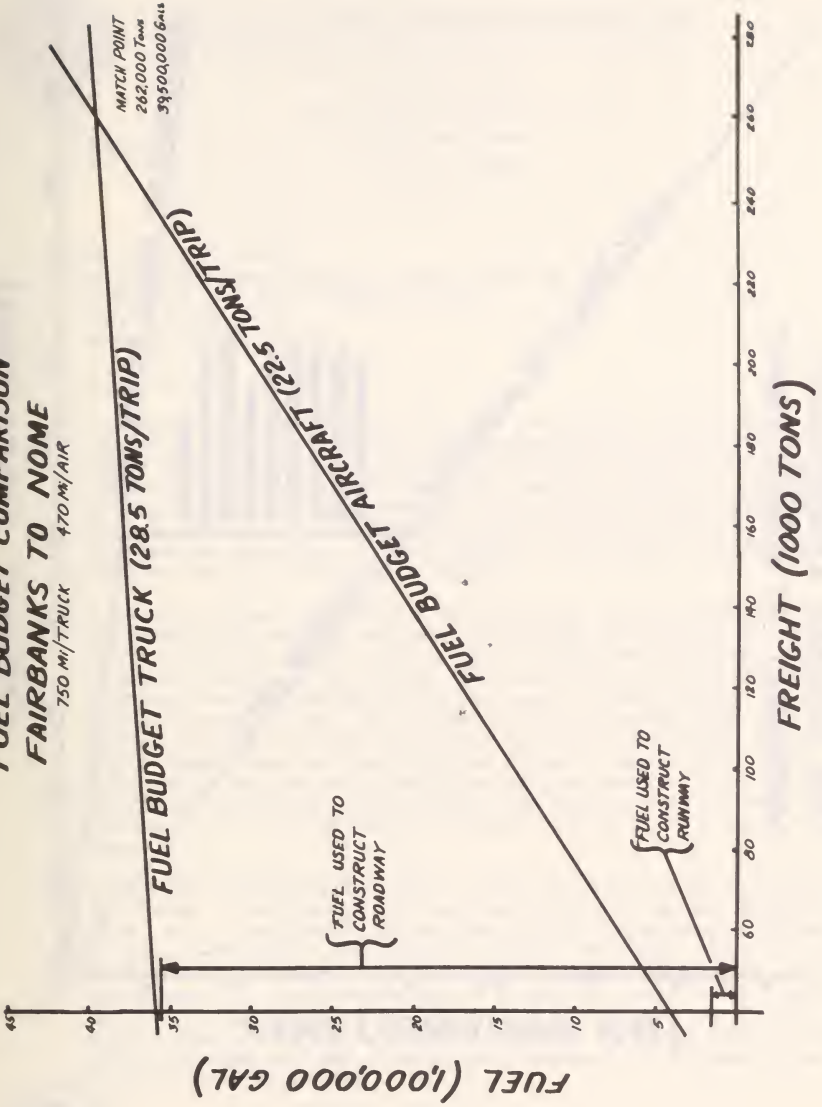
Taylor Bridges Reconnaissance Report, Alaska Department of Highways, 1972.

Geology Along the Taylor Highway, Helen Foster, U.S. Geological Survey, 1969.

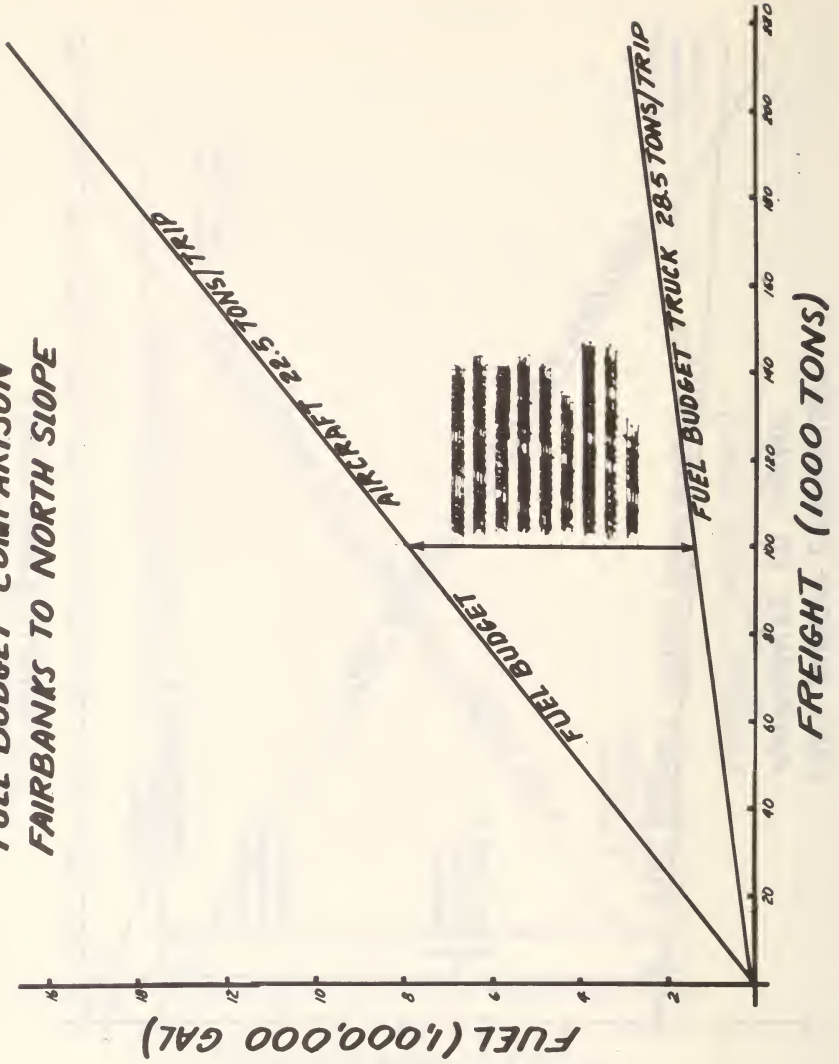
**FUEL BUDGET COMPARISON
FAIRBANKS TO BETHEL**
550 MI/TRUCK 540 MI/AIR



**FUEL BUDGET COMPARISON
FAIRBANKS TO NOME**
750 MI/TRUCK 470 MI/AIR



**FUEL BUDGET COMPARISON
FAIRBANKS TO NORTH SLOPE**





United States Department of the Interior

NATIONAL PARK SERVICE

Alaska Area Office

540 West Fifth Avenue, Room 202

Anchorage, Alaska 99501

March 16, 1978

IN REPLY REFER TO:

(AAO)AD

Mr. Steven P. Quarles
Senate Committee of Energy & Natural Resources
Suite 3105, New Senate Office Building
United States Senate
Washington, D.C. 20510

Dear Steve:

As promised, I write to correct and make more precise the testimony concerning Dall sheep hunting in the proposed Gates of the Arctic Wilderness National Park that I offered at your Senate Committee staff fact-gathering hearings here in Anchorage last month. What I gave you then, both orally and in written summary, was old and generalized information that we have since focused more accurately on the proposal area, and a more generous conception of sheep hunting in the "Gates" area could be inferred than the statistics now indicate.

According to Alaska Department of Fish and Game records 159 hunters shot 107 sheep in the proposal park area in 1973, 132 hunters shot 83 sheep there in 1974, 113 hunters shot 59 sheep in 1975, and 124 hunters shot 49 sheep in 1976. As you can see, the sheep harvest declined steadily over that four-year period, as did the number of hunters except for a slight increase in 1976. The explanation I have received from local sources regarding the decline in hunter success is that trophy animals are no longer found near the convenient places of hunter access - the lakes and gravel bars out of which the hunts are based. It is not clear whether the sheep have been shot out of the habitats near the good hunting bases or whether they have simply retreated to more remote areas.

In considering these harvest totals, some explanation of the statistics is in order. The proposed park comprises parts of three Game Management Units, and in compiling its harvest data, ADF&G breaks these units down, in turn, into subunits that comprise groups of drainages. Some of these drainages are within the proposal boundaries while others are not, so in many cases it is impossible to tell if a sheep was taken in the proposed park or outside. To be on the safe side we have assumed that in every subunit where a significant number of drainages are in the proposal area all of the sheep recorded as having been harvested in the subunit were taken in the proposed park.



Some hunters do not say on their harvest tickets which subunit their sheep came from, but simply list the overall Game Management Unit, or in some cases just "Brooks Range". As these kills cannot be located, ADF&G records them in "catch-all listings" by unit or mountain range. We have not counted these sheep as coming from the proposed park.

These unlocated Brooks Range harvest totals are as follows:

1973 - 14	(plus 25 unsuccessful Brooks Range hunters)
1974 - 18	(plus 28 unsuccessful Brooks Range hunters)
1975 - 24	(plus 16 unsuccessful Brooks Range hunters)
1976 - 14	(plus 40 unsuccessful Brooks Range hunters)

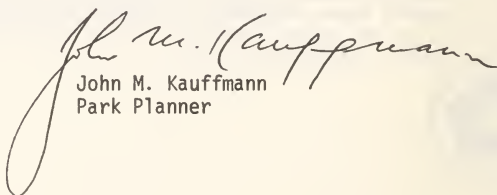
For the subunits substantial portions of which are in the park proposal, the sheep harvests in 1973-76 are as follows:

<u>General Area</u>	1973	1974	1975	1976
Pipeline Corridor area	7	0	nd	0
Hammond River	6	5	8	3
Glacier River	0	3	0	2
North Fork, Koyukuk River	20	11	5	6
Tinayguk River	nd	4	nd	2
Wild Lake-River	0	1	nd	1
John River	21	10	11	10
Walker Lake	nd	0	nd	0
Alatna River	10	8	9	7
Killik River	20	15	4	5
Okokmilaga River	1	2	3	1
Chandler Lake	6	5	4	2
Anaktuvuk Pass	1	1	1	1
Itkillik River	8	10	3	4
Noatak River	7	8	11	4
Ambler-Kogoluktuk-Reed Rivers-Schwatka Mountains	0	nd	nd	1
	<u>107</u>	<u>83</u>	<u>59</u>	<u>49</u>

I trust that this information will be helpful to the Committee. Please substitute it for the information of sheep hunting that I gave you in Anchorage.

With best wishes.

Sincerely,


John M. Kauffmann
Park Planner

**STATE
of ALASKA**
MEMORANDUM

 DEPARTMENT OF NATURAL RESOURCES
 PLANNING & RESEARCH

 TO ☐ U. S. Senate Energy & Natural
 Resources Committee Staff

DATE March 8, 1978

FILE NO.

TELEPHONE NO.

 FROM Dave Hanson, Chief *DLC b2 DH*
 Planning & Research
 Dept. of Natural Resources

 SUBJECT: Significant Resource Levels Per
 State's Resource Assessment System

During the course of the Committee's Alaska resources workshop last month, the Department submitted considerable information relative to d-2 area proposals from its statewide resource assessments.

The purpose of this memo is to indicate those resource levels or rankings (on our scale of one to ten) which the Department considers particularly significant in terms of state land selections. The list below notes levels of significance by resource assessment and the associated statewide acreage (regardless of land status) which meets these criteria. Please note lands with resource rankings below the "significance thresholds" listed here still can be important because of coinciding resource values and/or locational considerations.

<u>RESOURCE</u>	<u>LEVELS</u>	<u>STATEWIDE ACREAGE</u>
Agriculture	Top 5 levels	9.6 million
Forestry	Top 3 levels	18.0 million
Land Capability	Good and Fair Marginal (some significance)	20.7 million 68.5 million
Coal	Top 4 levels	11.6 million
Hard Minerals	Top 2 levels Third level (some significance)	31.5 million 17.1 million
Oil and Gas	Top 3 levels	42.7 million
Uranium	Top level	49,130 acres
Wildlife	Top level	26.4 million

Attached to this memo, please find the Department's remarks on several d-2 areas for the workshop record.

Attachments

MARCH 7, 1978
Planning and Research
Section

COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: ARCTIC WILDLIFE RANGE ADDITIONS

SUBJECT: NON-FEDERAL LANDS

Native Selections: Within the Andrus additions, BLM land status data provided to the state indicates over 360,000 acres are presently under native selection application. The state's estimate of final native holdings within the Andrus additions is 140,000 acres or about one percent of the areas' gross area (11 million acres).

State Land: State selected, tentatively approved, or patented lands within the proposed Andrus additions comprise about 1.3 million acres or about 12 percent of the proposal's gross area. The vast majority of this land lies south of the existing wildlife range in a roughly rectangular block.

State Interest Land: The state has tentatively identified about 1.1 million acres within the Andrus wildlife range additions as part of its state selection interest land pool. This acreage is contained in state interest area #66. This interest area is located in the Philip Smith Mountains of the Brooks Range and abuts state land to the south. The primary reason for state interest here is to provide state land in the Brooks Range for Dall Sheep hunting. In addition the area has potential for hard rock minerals.

MARCH 7, 1978
Planning and Research
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COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: ARCTIC WILDLIFE RANGE ADDITIONS

SUBJECT: RENEWABLE RESOURCES

Agriculture: The department's statewide assessment of potential agricultural land indicates that within the Andrus Arctic wildlife range additions there are some 430,000 acres of land with potential ranking in the fifth to the seventh levels. This land is located in the upper Sheenjek and Coleen river drainages and is the northern extension of the arable Yukon Flats area.

Forestry: Over 790,000 acres within the Andrus additions, which comprise over eleven million acres in all, are judged to have some forest resource management potential. These forest lands rank in the seventh and ninth levels, statewide and, like the agricultural lands, are located in the Upper Sheenjek and Coleen River drainages.

MARCH 7, 1978
Planning and Research
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COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: BERING LAND BRIDGE

SUBJECT: HARD ROCK MINERALS

The department's August, 1977 hard rock minerals assessment identifies 1.6 million acres of land as having some potential for hard rock minerals within the Andrus proposal. This acreage constitutes some 60 percent of the gross proposal's area. About one million acres of this potential mineral land ranks among the best 31 million acres of all potential hard rock mineral lands in Alaska (top two levels of the statewide index of ten).

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Planning and Research
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COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: DENALI PARK ADDITIONS

SUBJECT: RENEWABLE RESOURCES

Agriculture: The statewide assessment of lands with potential for agricultural development identifies 146,000 acres within the proposed Andrus Denali Park Additions. About 120,000 of this land with agricultural potential ranks in the third and fourth levels on the statewide scale of one (high) to ten (low). These lands are located in the northern portion of the Andrus additions along the Toklat River and in the southern portion of the Additions in the Susitna valley. The state has identified most of these lands in its selection interest land pool.

Forestry: Almost 1.2 million acres are identified as having forestry resource potential by the department's statewide forestry assessment. The vast majority of these forest resource lands rank in the eighth, ninth and tenth levels on the statewide index of one (high) to ten (low).

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Planning and Research
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COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: WRANGELLS (INCLUDING TETLIN REFUGE PROPOSAL)

SUBJECT: NON-FEDERAL LANDS

Native Selections: According to selection data provided to the state by the Bureau of Land Management, present native land selections within the Andrus Wrangells proposal (park and preserve) comprise over 1.4 million acres or eleven percent of the proposal's gross area. An estimate of final native land holdings within the Andrus proposal is 680,000 acres or five percent of the gross proposal area. About 400,000 of these final native holdings would be contained within the park and 280,000 within the preserve. Native lands are located in the Copper and Chitina River Valleys.

Within the proposed Tetlin refuge, present native selections comprise over 250,000 acres or 24 percent of the proposed units' gross area. Estimated final native land holdings within the Tetlin unit are expected to comprise only a slightly smaller acreage or 23 percent of the refuge area.

State land: There are almost 900,000 acres of state selected, tentatively approved, or patented land within the Andrus Wrangell proposal. Over 70 percent of this state land falls within the Andrus preserve area.

State patented lands are located near the historic mining center of McCarthy in the Chitina Valley. About 690,000 acres of state selected lands also located in the McCarthy area are contested by the Department of Interior. The balance of state land within the Andrus Wrangell proposal is located in the Copper River Valley.

Within the Andrus Tetlin proposal, there are state lands comprising almost 115,000 acres. These lands are located on or adjacent to the Alaska Highway.

State Interest Areas: The state has identified on a preliminary basis over one million acres of land within the Andrus Wrangell proposal as part of its statewide selection pool of 45 million acres. Over 60 percent of these state interest lands within the Wrangell proposal lie within the preserve portion.

The state interest acreage is comprised of two main areas of roughly equal size. One area is located in the Nutzotin Mts. on the north flank of the Andrus proposal within the preserve portion. It is of interest to the state for its hard rock mineral potential and Dall Sheep hunting. Because of the Andrus preserve status and Andrus proposed mineral management zones in this area, this state interest area (reference area #34 on Preliminary State Selection Interest Area Map, November, 1977) is of relatively low priority.

State interest area #33 lies within the valley's of the Copper and Chitina Rivers. The area connects existing state land in the McCarthy area with state land along the Copper River, and has value for agriculture, forestry and land settlement potential. Within the Chitina valley, the identified lands are located on the north side of the river. The interest area rates as a very high priority for the state.

State interest area #35 lies within the Andrus Tetlin proposal. The area is located along the Alaska Highway between existing state land and the Alaska-Canada border. The 80,000 acre area contains highway accessible land with physical characteristics suitable for intensive land uses. Of particular interest to the state is obtaining land for campground and wayside developments and land suitable for a state visitor center at the highway entrance to Alaska. State selection interest in this area is extremely high.

MARCH 7, 1978
Planning and Research
Section

COMMENTS FROM THE ALASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE RECORD OF SENATE ENERGY AND
NATURAL RESOURCES COMMITTEE WORKSHOP,
FEBRUARY 1978, ANCHORAGE.

AREA: WRANGELLS (INCLUDING TETLIN REFUGE PROPOSAL)

SUBJECT: RENEWABLE RESOURCES

Agriculture: The department's statewide assessment of agricultural land has identified slightly over 237,000 acres of land which has some agricultural potential within the proposed Andrus Wrangell park and preserve d-2 unit. This cultivable land lies in the Copper and Chitina River Valleys. Some 87,000 acres of this potential agricultural land rank in the fifth and sixth levels on the department's scale of one (high) to ten (low). The rest of the arable lands within this d-2 proposal (some 150,000 acres) ranks in the ninth and tenth levels, statewide.

The proposed Andrus Tetlin wildlife refuge, which comprises over one million acres, contains 60,000 acres of land with agriculture potential. This land ranks in the seventh level.

Forestry: Within the Andrus Wrangell proposal, the department's statewide forestry assessment identifies almost 2.2 million acres of land as having some potential for forest resource management. One million acres of this land ranks in the best half of all forest resource land in Alaska. Like the arable land mentioned earlier, these forested areas are also located in the Copper and Chitina River Valleys.

The Andrus Tetlin refuge proposal contains over 260,000 acres of lands with forestry potential, an area which constitutes about one-quarter of the proposed refuge's gross area. The lands rank in the fifth and sixth levels on the department's statewide forest index of one (high) to ten (low).

Land suitability for intensive use: In terms of physical land characteristics which would impose only slight limitations for intensive human use (such as settlement and road construction), almost 400,000 acres of land within the Andrus Wrangells proposal rate in the top two levels of the state's land capability index. This land is located primarily in the Chitina River Valley.

The Andrus Tetlin proposal contains about 185,000 acres of land rated, on a statewide basis, as having fair suitability for intensive uses. This land is located along or adjacent to the Alaska Highway.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HYDROCARBON POTENTIAL OF THE
ARCTIC NATIONAL WILDLIFE RANGE
ALASKA

by

C. G. Mull and B. A. Kososki
Menlo Park, California

A preliminary evaluation
prepared for the U.S. Fish
and Wildlife Service.

1976

These data are preliminary
and should not be quoted
without permission.

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PROPRIETARY MAP NOT
INCLUDED, AVAILABLE
FOR EXAMINATION IN
ANCHORAGE USGS OFFICE

Hydrocarbon Potential of the
Arctic National Wildlife Range, Alaska
A Preliminary Evaluation

INTRODUCTION

This report has been prepared by the U.S. Geological Survey, Branch of Oil and Gas Resources, for exclusive and confidential use by the U.S. Fish and Wildlife Service. It is intended as an interim evaluation of the hydrocarbon potential of various portions of the Arctic National Wildlife Range, based upon presently available data. Additional refinement in delineation of prospective areas may result from field studies to be conducted during the 1976 summer field season. This evaluation is based upon a preliminary analysis of all available relevant public data plus evaluation of a proprietary aeromagnetic survey. Because of the use of public and proprietary data, this report is considered an administrative report only. It cannot be made public in this form. The conclusions resulting from the study can be made public, but that interpretation which is based upon the aeromagnetic survey cannot be made public, nor can mention be made of use of this survey in reaching the conclusions.

The primary sources of information were U.S. Geological Survey reports and maps on the geology, geochemistry, and gravity of the area. A listing of these references can be found in the bibliography of this report. A proprietary airborne magnetometer survey purchased by the U.S. Fish and Wildlife Service was interpreted and used in conjunction with gravity data to produce a depth-to-basement map.

SUMMARY OF CONCLUSIONS

A map showing the relative hydrocarbon potential of various portions of the Arctic National Wildlife Range is presented as Plate 1 (in pocket). Currently available data permit a subjective rating of the various portions of the range in one of four categories. These categories are as follows:

- Category I -- Very highly prospective
- Category II -- Moderately prospective
- Category III -- Slightly prospective
- Category IV -- Non-prospective

It should be emphasized that these ratings are subjective and relative; data currently available will not enable any quantitative estimate to be made. It must also be emphasized that the boundaries delineating the various prospective areas on these maps are approximate only and are based upon an interpretation of the currently available data. Additional data and more refined interpretations may shift the boundaries between various prospective zones slightly or may result in major revision of the assessment of the potential of some of the areas. Field investigations planned for summer 1976 include the collection of surface geologic and gravity data. These observations and later geochemical analyses should help to resolve some of the questions regarding the hydrocarbon potential.

An assessment of the undiscovered recoverable hydrocarbon resources of only the Arctic National Wildlife Range following the subjective probability methods described in U.S. Geological Survey Circular 725, (Miller, B. M., and others, 1975) has not been completed to date. Following the 1976 field season, however, an assessment of this type will be made.

REQUIREMENTS FOR A PROSPECTIVE HYDROCARBON PROVINCE

Assessment of the hydrocarbon prospectiveness of an area requires knowledge of a number of parameters that control the development and entrapment of oil and/or gas. The major parameters are:

1. Source beds. Fine grained sediments containing organic matter favorable for the development of hydrocarbons must be present in an area.
2. Reservoir beds. Coarse grained clastic rocks (sandstone or conglomerate), or carbonate rocks (limestone or dolomite), containing porosity and permeability must be present to contain any hydrocarbons generated by the source beds.
3. Sealing beds. Impermeable rocks must overlie the porous reservoir rocks to prevent upward escape of the hydrocarbons.
4. Trapping mechanism. The reservoir rocks must be deformed or modified in some way in order to inhibit lateral migration of any hydrocarbons generated by the source beds.

In addition to these major parameters, factors such as thermal gradients, burial history, relative timing of hydrocarbon generation and trap development, and others all play a role in the formation of a commercial oil or gas field. Assessment of the hydrocarbon prospectiveness requires evaluation of as many of these factors as possible. In the preliminary stages of assessment of a frontier area such as the Wildlife Range, information is obtained from surface geologic mapping, laboratory studies and analyses of surface samples, reconnaissance geophysical methods such as aeromagnetic surveys and gravity surveys, and extra-

polation of data from adjacent areas. From these data it is possible to make certain inferences concerning the presence of the various parameters mentioned above. Usually, however, these data are only suggestive of the potential. A better knowledge of the extent and deformation of various potential reservoir horizons usually requires geophysical techniques such as seismic studies.

In the area of the Wildlife Range, the hydrocarbon prospectiveness has been assessed on the basis of surface geologic, laboratory, aeromagnetic, and gravity studies, and by extrapolation of data from adjacent areas. No seismic surveys are available.

The available surface geological mapping and laboratory data are adequate for preliminary assessment of the hydrocarbon source and reservoir bed potential in the Range. The data indicate that extremely rich source beds are present, and that beds with excellent reservoir potential may be present in parts of the range. There is also excellent potential for reservoir bed sealing and the development of traps in part of the area. Extrapolation of data from adjacent areas, both east and west of the Range, also confirm the prospectiveness of these basic hydrocarbon exploration parameters. The data presently available do not permit a precise determination of the extent and quality of the potential reservoir beds, nor do they show the location of specific target areas.

Geophysical data have been used to arrive at a generalized picture of the subsurface configuration of the sedimentary basins lying north of the mountain front in the Wildlife Range. This information is of

great value in predicting the thickness of some of the major rock units and in the prediction of the direction of fluid migration, either hydrocarbon or water, in the rocks. The gravity map of the northern part of the Wildlife Range, Plate 2, is based primarily on data acquired during the 1975 field season. Plate 3 represents Aero Service's interpretation of the aeromagnetic survey which was purchased by the U.S. Fish and Wildlife Service. Included in this interpretation are shallow structures showing synclinal and anticlinal axes, faults, strikes and dips, geologic contacts, and depth to basement contours. In order to generate a more accurate depth to basement map the gravity and magnetic data were synthesized to produce Plate 4. Actual depth to basement calculations based on the magnetic data are plotted on this map. Discrepancies between these plotted values and the contours on Plate 4 result from integrating the results of two-dimensional theoretical model studies of the gravity data with Aero Service's magnetic depth to basement calculations. Additional discrepancies between the basement contours on Plates 3 and 4 result because much of the implied basement structure on Plate 3 is based on shallow magnetic sources and the assumption by Aero Service that 10,000 feet of sedimentary section exists between Tertiary age rocks and basement. These shallow magnetic sources and the assumption of 10,000 feet of pre-Tertiary age sedimentary rock were not used in producing Plate 4.

While far from representing the ideal standards for determining depth to basement (and thus basin configuration), Plate 4 is believed to represent a reasonable interpretation of the available data. This map

along with geochemical data, surficial geologic studies, and projections of the subsurface geology from adjacent areas was used to produce Plate 1, which outlines areas of varying hydrocarbon potential within the Arctic National Wildlife Range. In addition to the outlined prospective areas, the map shows wells, oil seeps, and the rock outcrops along the mountain front and on the coastal plain.

PROSPECTIVE AREAS

I. Very Highly Prospective

An area of extremely high hydrocarbon potential underlies the Arctic Coastal plain in an area extending from Barter Island on the north, southward between the Jago River and Okpilak River to approximately latitude $69^{\circ} 50'N$ (the south boundary of T6N). The prospective area extends eastward along approximately this latitude to the Angun River (Sikutaktuvik River on some maps) and then northeastward to the Beaufort Sea coast in the area of Angun Point. All of the reconnaissance geological and geophysical criteria point to this area as having a hydrocarbon resource potential that could approach that of the Prudhoe Bay area west of the Wildlife Range.

As summarized above, evidence indicates that rich source beds and potential reservoir beds may be present in the subsurface. Organic geochemical analysis of a shale on the Jago River revealed 9.5 percent organic carbon and 3,820 ppm oil content (ordinary non-source shales usually have less than 2 percent organic carbon and less than 100 ppm oil). Extrapolation of regional trends indicates that several rock units with only moderate reservoir potential in outcrop, probably improve in character northward in a manner similar to improvement in reservoir potential in the Prudhoe Bay area. Both the Sadlerochit Group and Lisburne Group sediments crop out at the mountain front and seem to have improving reservoir character northward. Rocks of this age form two of the major reservoirs at Prudhoe Bay. In addition, the Kemik Sandstone Member of the Kongakut Formation may have reservoir potential in the subsurface.

Regional gravity and aeromagnetic studies suggest that this area is underlain by a large structurally high platform onto which the sedimentary rock units thin. These studies indicate that a deep sedimentary basin, perhaps in excess of 25,000 feet deep, lies to the west in the vicinity of Camden Bay. Regional gravity studies by D. F. Barnes and B. D. Ruppel suggest that similar deep sedimentary basins lie offshore to the northwest, north, and east of the Barter Island area. The south margin of the broad positive area is also well defined by the geophysical data which show a structurally low area separating the platform from the outcrop belt at the mountain front. A configuration of this type is ideal for updip migration of hydrocarbons into the structurally high area which acts as a point of focus for hydrocarbons migrating out of the surrounding deep basins. Similar positive areas of this type frequently have a geologic history that is favorable for the development of attractive reservoir beds and traps. In gross configuration, this area displays very nearly the same regional patterns as the Prudhoe Bay area.

The presence of an exposure of Jurassic age rocks surrounded by Cretaceous rocks in T6N, R36E also suggests the presence of a structurally high area. In addition, significant drainage anomalies also exist in the area. Examination of the topographic map indicates that a number of the major streams in the eastern coastal plain area of the Wildlife Range seem to be deflected eastward away from the area of the subsurface positive feature discussed above. In contrast, the Niguanak River flows northward across the area of this positive feature but, with some of its tributaries, has a prominent circular drainage pattern in T7N, R36

and 37E. The river is also slightly incised into the coastal plain in this area. Although drainage anomalies can result from other causes, they frequently are caused by subsurface structures which slowly deflect the drainage toward structurally lower areas.

The petroleum potential of the area, based upon the criteria just discussed, is further enhanced by the presence of two oil seeps, one at Manning Point and the other near Angun Point, and a large outcrop of oil saturated sandstone on the Jago River. Surface seepages of oil are frequently, although not invariably, good indicators of the presence of hydrocarbon accumulations in the subsurface.

Critical Factors Affecting the Hydrocarbon Potential

In spite of the several indications that point to the area as highly prospective, it is impossible to completely assess the potential on the basis of available data. Crucial factors include the original northward extent of reservoir beds, the position of unconformities within the sedimentary section, and the location of structural traps within the section. Another factor that can control the formation of significant hydrocarbon accumulations is the relationship between the time of hydrocarbon generation and the time of formation of structural traps and unconformities. These factors, and others, cannot be assessed without subsurface information. Two of the most significant factors are discussed below.

Original Northern Distribution of Potential Reservoir Beds

A large unknown is the distribution of potential reservoir beds. Although north dipping beds with reservoir potential are

present in outcrop to the south, the extent of these horizons in the subsurface is unknown. Regionally, the most favorable horizons (listed in approximate order of descending potential) seem to be: the Sadlerochit Group of Permo-Triassic age, the Kemik Member of the Kongakut Formation of Early Cretaceous age, the Lisburne Group of Carboniferous age, and the Sag River Sandstone of Late Triassic age. Regional sedimentary trends suggest that all of these rock units pinch out northward at unknown distances from the mountain front outcrops. Although the trends suggest that the original distribution of these reservoir rocks included most of the coastal plain area, there is no information to definitely confirm the details of the trends in the area of the Wildlife Range.

Unconformities

An additional factor affecting the distribution of reservoir beds in the Wildlife Range is the presence of unconformities within the sedimentary section. In northern Alaska a major Lower Cretaceous unconformity has erosionally truncated and removed underlying older rock units. In the Prudhoe Bay area this unconformity truncates all the reservoir beds and is overlain by rich Cretaceous shales which provide a hydrocarbon source and also a seal to the trap at the Prudhoe Bay field. Figure 1 shows the unconformities at Prudhoe Bay, illustrating the truncation of the older reservoir beds by the Lower Cretaceous unconformity and the seal provided by the Cretaceous source rocks. In the

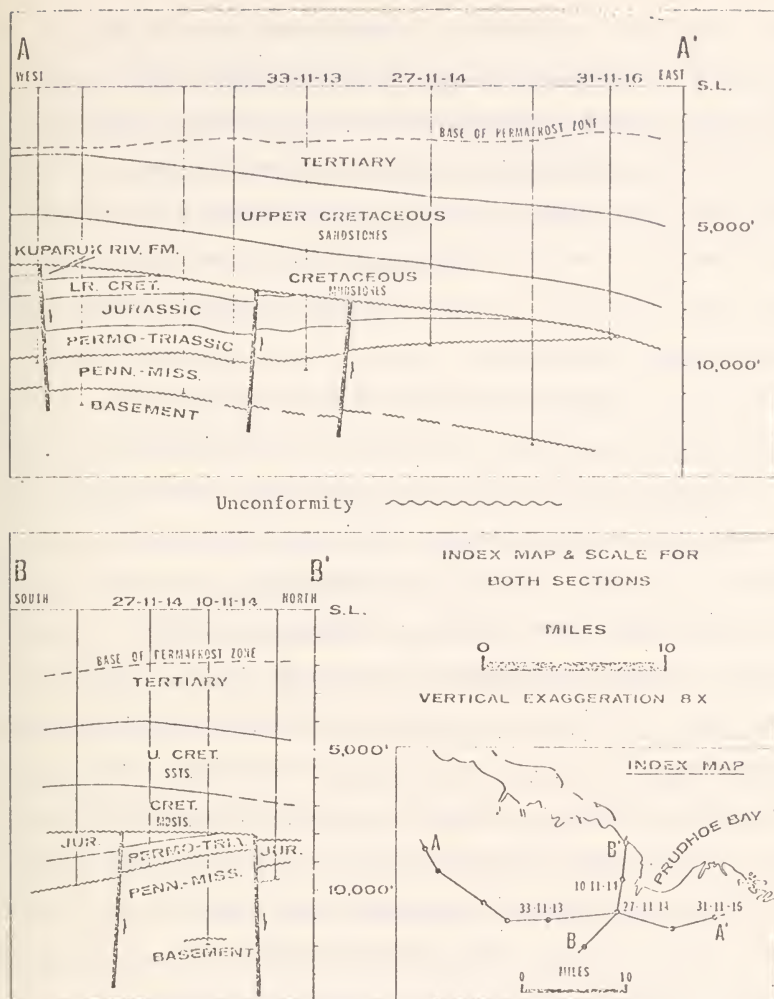


Fig. 1 - Generalized cross sections of Prudhoe Bay field (from Jones and Speers, 1976).

Wildlife Range this unconformity is present in outcrop along the mountain front. In addition, within the Wildlife Range, there may be another important younger unconformity not present to the west. With these unconformities present, it is possible that although the original distribution of potential reservoir beds may have covered the northern portion of the Range, these rocks may have been subsequently truncated northward and might no longer be present in parts of the area.

Although the truncation and erosion of older rock units may adversely affect the potential of the area, in the Prudhoe Bay area to the west of the Wildlife Range, unconformable truncation of reservoir beds is one of the main controlling factors in the formation of the Prudhoe Bay field. At Prudhoe Bay, (as stated above) an unconformity near the base of Cretaceous age rocks juxtaposes extremely rich hydrocarbon source beds with the older reservoir beds. Hydrocarbons then apparently migrated from the overlying source beds into the underlying reservoir beds. This unconformable relationship provides both the hydrocarbon source and part of the trapping mechanism (seal) that formed the field.

Evidence in the Wildlife Range suggests that a similar unconformable relationship trends northeastward from the Sadlerochit Mountains area toward the Barter Island area, but the exact location in the subsurface is unknown. It apparently trends north of significant rock exposures located in T6N, R36E in the Niguanak River area. The possibility of an unconformity

crossing the platform area discussed above is an additional factor highly favorable to the petroleum potential of the area. Although an unconformity (or unconformities) may limit the northward extent of possible reservoirs, it may also result in a juxtaposition of hydrocarbon source beds with reservoir beds to form a trap similar to that at Prudhoe Bay.

Other Potential Reservoir Horizons

Although regional evidence suggests that the best potential reservoir horizons are beds that underlie the Cretaceous unconformity (or unconformities), good reservoir beds may also exist in the rocks overlying the unconformity. In the Wildlife Range, the Kemik Sandstone directly overlies the unconformity and is as much as 100 feet in thickness in some areas. It may have reservoir potential in the subsurface. In addition, oil saturated sandstones are present in the Cretaceous (or basal Tertiary) sediments in the Wildlife Range. Where seen in outcrop, these beds are relatively thin and would not be significant reservoir horizons in the subsurface. Changes in the sedimentary trends, however, could result in thicker Cretaceous or Tertiary reservoir sands in the subsurface than those seen in outcrop. Presence of thicker Cretaceous sandstones would be particularly significant in the development of hydrocarbon potential, because these sandstone reservoirs would be closely associated with indigenous hydrocarbon source beds. Tertiary sandstones with reservoir potential would also be advantageous, although sediments of this age might be more likely to contain gas than oil because of their immaturity.

Summary

Evidence indicates that an area south and east of Barter Island has extremely high potential for containing significant hydrocarbon accumulations. Geological factors are very similar to those that resulted in the Prudhoe Bay accumulation of over 10 billion barrels of recoverable oil. If these factors are combined in a similar fashion in the Barter Island area, comparable sized oil and/or gas accumulations could exist in the northern portion of the Wildlife Range. If the geological controls are not combined in the same way as at Prudhoe Bay, the recoverable hydrocarbon resources could range downward through the full spectrum of field sizes to even insignificant accumulations, in spite of the favorable appearing aspects.

Further refinement of the assessment of the potential of this area should result from planned surface geological field studies, additional gravity studies, and additional study of the available data. Accurate determination of the two most important geological factors--the position of the important Lower Cretaceous unconformity and/or the location of the northern stratigraphic pinch out of some of the potential reservoir beds--is not possible by surface geology, gravity studies, or magnetic studies. Only regional reflection seismic geophysical methods conducted in the area will be of much aid in determining the importance of these controls on development of possible hydrocarbon accumulations in the Barter Island area.

II. Moderately Prospective

An area of moderate hydrocarbon potential lies beneath the northern part of the coastal plain and foothills area between the Canning River on the west and the highly prospective Barter Island area on the east. The southern limit of this area is approximately latitude $69^{\circ}45'N$, the south edge of T5N. Regional geophysical studies suggest that a very deep sedimentary basin underlies this area and the area immediately offshore beneath Camden Bay. The generalized outline and inferred depths to economic basement rocks are shown on Plate 4. The mapping suggests that this basin generally has a steep south flank, and ranges from 10,000 to 22,000 feet in depth in much of the area north of the Sadlerochit Mountains. The factors suggesting favorable hydrocarbon potential are: 1) Presence of rich hydrocarbon source beds; 2) Presence of thin potential reservoir beds at several horizons; 3) Presence of at least one known surface anticline (the Marsh Creek anticline), a potential trap; 4) Presence of an oil saturated sandstone in outcrop and, 5) The area lies on the flank of a deep basin which provides a favorable setting for the entrapment of hydrocarbons generated in the deeper part of the basin and expelled upwards and laterally.

In spite of the presence of these very favorable factors, however, the area is not considered as highly prospective as the Barter Island area to the east. The great depths to basement rocks in part of the area decrease the potential for hydrocarbons in the lower portion of the sedimentary section. As a result, some of the possible reservoir horizons that have great potential in the Barter Island area, if present in

the subsurface north of the Sadlerochit Mountains, will have greatly reduced hydrocarbon potential due to the greater depth of burial which adversely affects the porosity and oil generation capability. However, younger and shallower reservoir horizons, some of which may not be present in the Barter Island area, may exist in this deep sedimentary basin. If present along the flanks of the basin these beds might be in a good location to trap hydrocarbons generated in the deeper parts of the basin and expelled upward and laterally.

Consideration of the sediments, their age and depth of burial and the inferred thermal history suggests that the potential may tend more toward gas than oil. Geochemical studies suggest that the organic material of much of the older sedimentary section (pre-late Cretaceous) in the outcrop belt is thermally matured beyond the point of optimum oil generation to the stage of dry gas generation. In contrast much of the younger sedimentary section (Tertiary) is probably immature and therefore also more gas prone than thermally mature sediments. However, the same age sediments, if more deeply buried in other portions of the basin, might be capable of generating liquid hydrocarbons.

Critical Factors Affecting the Hydrocarbon Potential

Several factors severely inhibit the assessment of the hydrocarbon potential of this area.

Unconformities

Outcrop mapping along the north side of the Sadlerochit Mountains indicates that the same important Cretaceous unconformity which truncates the reservoir horizons in the Prudhoe Bay field and

juxtaposes hydrocarbon source beds over reservoir beds is present in this area. The trend of the unconformity, may be to the north-east, but how far it maintains this trend and the rate at which northward truncation occurs, is unknown. It is likely that the important Sadlerochit and Lisburne reservoir horizons of the Prudhoe Bay area, may have been totally removed by erosion and are not present in the northern part of this portion of the Wildlife Range. Although the Marsh Creek anticline is a major surface anticline, some of the best potential reservoir beds may be absent. Even if preserved beneath the unconformity, in much of the area these horizons may be too deep for preservation of good reservoir characteristics.

Structure and Lithologic Character

Consideration of the regional structural style suggests the possibility that the Marsh Creek anticline may be a very shallow feature that does not affect deeper stratigraphic horizons. Other factors concern the nature of the sediments overlying the Cretaceous unconformity (or unconformities). Drilling in the area west of the Range has revealed thick sandstone or conglomerate beds that may have reservoir potential. Changed geological conditions known to have existed in the Wildlife Range area can be inferred to have resulted in better reservoir potential in the Cretaceous and Tertiary rocks than has been observed elsewhere. Significant discoveries have been made in rocks of this age in the Mackenzie Delta area of Canada. At present information concerning this part

of the sedimentary section in the Wildlife Range is too sparse to predict the reservoir potential with confidence.

Summary

An area lying generally north of the Sadlerochit Mountains has moderate potential for gas and oil. Most of this potential is probably in rocks that are generally younger than the productive horizons in the Prudhoe Bay area. Information concerning these Tertiary and upper Cretaceous horizons is sparse; they cannot be evaluated solely on the basis of surface geology and reconnaissance geophysical methods. The Marsh Creek anticline may not have sharp subsurface expression and some potential reservoir horizons may be absent in the area of the anticline. However, if reservoir beds are present, significant hydrocarbon accumulations may exist. The area is of sufficient potential to warrant further evaluation.

III. Slightly Prospective

An area of unknown hydrocarbon potential underlies part of the Arctic coastal plain in the area of the lower reaches of the Kongakut, Egakrak, and Aichilik Rivers. Regional gravity studies by Barnes, Kososki, and Ruppel suggest that a moderately deep sedimentary basin lies offshore northeast of this area. The basin appears to have a south flank that rises rapidly to the outcrop belt at the mountain front between the Clarence and Kongakut Rivers. West of the Kongakut River, the gradient rises more gently toward the outcrop belt. Depths to basement rock onshore are estimated to be less than 8,000 feet.

Consideration of the regional surface geology, geophysical data, and extrapolations from subsurface control to the east in Canada suggest that this area does not have high hydrocarbon potential. The geophysical data suggest that pre-Cretaceous age sedimentary rocks in the subsurface rise continuously toward the outcrop belt. Unless local reversals in dip, or major faulting is present, any hydrocarbons which had been present in these rocks will probably have been expelled to the surface. In addition, extrapolation of geochemical data suggest that these rocks may be thermally overmature. If hydrocarbons are present in the pre-Cretaceous rocks, they probably will have been derived from Cretaceous rocks overlying the regional unconformity (or unconformities) which truncated the older rocks. The position of this truncation is unknown, but probably lies offshore. In any case, hydrocarbon accumulations in the pre-Cretaceous age rocks are likely to be of small areal extent. The potential of the Cretaceous

and younger sedimentary section is also unknown. No outcrops of rocks of this age are known in the area; their presence is inferred by extrapolation from adjacent areas. The shallow depths to basement indicated for this area, however, suggest that Cretaceous or Tertiary rocks will probably be thin.

Critical Factors Affecting the Hydrocarbon Potential

The question in this portion of the coastal plain area is the lack of structural and stratigraphic information concerning the younger sedimentary section. Outcrops are totally lacking in the area. Major changes in the regional geologic trends could result in generally improved hydrocarbon potential, but such changes are not anticipated.

Summary

The hydrocarbon potential of the coastal plain area in the lower reaches of the Aichilik, Egakrak, and Kongakut Rivers is low. Based upon existing data, basement rocks are probably at shallow depths, and in much of the area communication of the sedimentary section to surface or thinly mantled outcrops is likely. Additional evaluation of the area will be dependent upon seismic studies.

IV. Non Prospective

The major portion of the Arctic National Wildlife Range is non-prospective for hydrocarbons. This area includes all of the mountain areas and most of the foothills belt north of the mountains. In the mountains all of the potential reservoir horizons are present at the earth's surface, and any hydrocarbons that might once have accumulated have been dissipated. Beneath most of the foothills area, regional geology and the reconnaissance geophysical data suggest that these potential reservoir horizons are probably present either at very shallow depths or are steeply dipping into the subsurface. In either case, the potential for significant hydrocarbons is almost nonexistent. The regional assessment suggests that the entire area south of approximately latitude 69°45'N (approximately the boundary between T4N and T5N) has no effective hydrocarbon potential.

General Summary of Petroleum Prospective Areas

Based upon current knowledge, the Arctic National Wildlife Range can be divided into four discrete areas with hydrocarbon potential ranging from extremely high to nonexistent. An area of approximately 468 sq. mi. (13 twps.) southeast of Barter Island has oil and gas potential that could rival the potential of the Prudhoe Bay area. To the west is an area of moderate potential which, while lacking all of the attributes of the Barter Island area, may have considerable potential beneath the foothills and coastal plain north of the Sadlerochit Mountains. The boundaries of these areas are only approximately defined, and are controlled mainly by the gross form of the depth to basement contours.

Additional field geologic studies, analyses of sediments for organic geochemical data, analyses of sediments for porosity and permeability, and some additional gravity measurements may aid in some refinement of the assessment. Boundaries of the areas may shift somewhat with this type of additional control, but no major changes are anticipated.

Seismic geophysical studies will be required to significantly change the overall assessment of the potential of the area. The major unknown geological factors are:

1. Lack of knowledge concerning the subsurface extent of some major known reservoir beds.
2. Lack of knowledge concerning the rate and trend of unconformities which may truncate and further limit the distribution of some of the potential reservoir beds while at the same time providing a means of communication of hydrocarbons from their source rocks into reservoir rocks.

Seismic data could significantly add to the knowledge of these vital relationships. It must be emphasized, however, that not even detailed seismic data can prove the presence or absence of significant hydrocarbons; the process of evaluation of the potential requires access to these areas for surface geologic and geophysical studies. Only by relating the observed outcrop relationships to the geophysical data can a more definitive hydrocarbon assessment of this area be made. Without a tie to the surface exposures an assessment based solely upon geophysical data is greatly hindered.

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17 FEB 78 COMMENTS ON
WILDLIFE IN THE ARCTIC
BY HARRY REYNOLDS,
ALASKA DEPT OF FISH & GAME
SUBMITTED BY
DICK BASTAR

Summary of Wildlife and Habitat Information
for the Arctic National Wildlife Range

I. Wildlife Species

- A. Caribou - The Porcupine caribou herd is the largest in Alaska and numbers about 100,000. Approximately 60,000 annually migrate to the calving grounds. These include a large majority of the pregnant cows of the herd and smaller proportions of males and non-producing females. Over 20,000 calves are produced and follow the rest of the herd during the July post-calving migration into Canada.
- B. Dall sheep - Moderate to high population levels are found in the Brooks Range compared to the other mountain ranges in the state. Densities of sheep are higher in the eastern and central Brooks Range than they are in the western portion.
- C. Moose - Numbers are generally low in this area primarily due to lack of suitable winter habitat.
- D. Brown/Grizzly bear - Densities of grizzlies are low to moderate compared to other areas of similar habitat in Alaska but are very low in comparison to densities found in southern coastal regions. The most important factor limiting bear numbers and productivity in the area is food availability which is influenced by climate and physiography.
- E. Black bears - May be found in sparse numbers in the extreme southern limit of the area. This is the northern edge of black bear habitat which does not extend beyond tree line.
- F. Wolves - During most of the year wolves are found in association with moose and caribou numbers. Densities are low to moderate compared to other areas in the state.

II. Species Movements

With the exception of caribou and possibly wolves in association with the caribou herd, land mammals in the area do not move long distances. Caribou from the Porcupine herd calve on the coastal plain of the ANWR in early June. In early July, the main body of the herd, composed largely of females with calves, yearlings and some bulls begin the post-calving migratory movement to the southeast into Canada. Some bull and yearling groups remain in the area throughout the year but most have followed the herd by September. In August the main herd disperses throughout its range and some may re-enter Alaska in the vicinity of Arctic Village and then move back into Canada. By October all sexes and age classes of caribou congregate again during the breeding season and begin movement to winter ranges. The location of these ranges vary from year to year and may be widely separated

for different segments of the herd. A portion of the herd (up to 20,000) usually winters in Alaska, most often in the proposed addition to the ANWR or further south. In the spring caribou again begin migration to the calving grounds on the north slope of the ANWR.

III. Important Human Uses

Although subsistence use of wildlife resources by rural residents of Kaktovik and Arctic Village includes all species, dependence on caribou is far greater than on any other land mammal. The annual hunter kill from the Porcupine caribou herd ranges from 4-6000, with about 1-2000 killed in Alaska and 2-4000 killed in Canada. Of the number killed in Alaska most are taken by residents of Arctic Village, Kaktovik and occasionally Venetie; sport hunters may take as many as 100 of the total. In addition, residents of Kaktovik annually take about 30 Dall sheep and those from Arctic Village take about 30 moose.

Recreational use of the area is increasing by both consumptive and non-consumptive users: in 1975, about 300 people visited the area and by 1977, this number increased to 500. Non-consumptive users made up about 66 percent of the total in the ANWR and about 54 percent of the use in the proposed addition.

Sport hunters are attracted to the area primarily to hunt Dall sheep and grizzly bears; the goal of 71 percent of those contacted in 1975 was to hunt Dall sheep or grizzly bears. In 1977, 39 percent of the sheep which were taken by sport hunters in the Brooks Range came from this area.

Many non-consumptive users were attracted to this area because of the opportunities to view wildlife, especially caribou. Boating, especially by kayak, took place both in the ANWR and its proposed additions.

IV. Transportation Conflicts

At present, no pipeline or road construction has noticeably affected the movement patterns or productivity of the Porcupine caribou herd in Alaska; however, the recent completion and opening of the Dempster Highway in the Yukon may eventually be shown to affect their migratory movements. Also the presence of the TAPS to the east of the area may affect future large-scale immigration or emigration of caribou to or from the area.

Construction of a highway to Kaktovik from the TAPS road could seriously affect the herd if it crossed the calving grounds in the ANWR.

If use of snow-machines or river boats were excluded in the proposed addition it would adversely affect the ability of local residents to procure wildlife resources for personal use. Also,

* *The importance of the proposed addition for recreational hunting will increase significantly if status of the Arctic Wildlife Refuge is established.*

if the use of aircraft were prohibited in the area, access would be denied for both consumptive and non-consumptive users. On the other hand, if use by these groups threatens the habitat or game resources, numbers of users or access may have to be restricted to insure proper management, a solution suggested in the ADF&C Wildlife Management Plan Proposals.

V. Management and Research Conflict Potential

If the area is placed in a land status in which the use of aircraft is prohibited, the collection of basic biological information necessary for the understanding and sound management of species might not be possible. In other words, if low-level aerial surveys or capture and marking of animals with the aid of aircraft were not permitted in the area, it would not be possible to determine the baseline information necessary to understand wildlife populations.

POSSIBLE EFFECTS OF d-2 WITHDRAWALS ON SHEEP MANAGEMENT
DALL SHEEP HUNTER HARVEST DATA - 1976

<u>Location</u>	<u>Harvest</u>	<u>Total Hunters</u>	<u>% Statewide Harvest</u>	<u>% Statewide Pressure</u>	<u>Sheep Popn.</u>
Wrangell Mts.	322	754	29	23	12,000
North	199	398	18	12	9,000
South	123	356	11	11	3,000
McKinley Park Extension	40	60	4	2	1,000
Lake Clark	30	63	3	2	1,000
Gates of the Arctic	52	110	5	3	3,000
Probable restricted hunting	<u>444</u>	<u>987</u>	<u>41</u>	<u>30</u>	<u>26,000</u> <i>19,000</i>
ANWR	79	118	7	4	8,000
Alaska total	1,112	3,236			40-50,000

NATIVE VILLAGE OF VENETIE

Federally Chartered Tribal Government and Corporation

for the

VENETIE INDIAN RESERVATION

February 16, 1978

FIRST CHIEF

Gideon James
Arctic Village

SECOND CHIEF

Edward John
Venetie

SECRETARY

Charlotte John
Venetie

TREASURER

Paul Williams
Arctic Village

SERGEANT-AT-ARMS

Timothy Sam
Arctic Village

PARLIAMENTARIAN

Lawrence Roberts
Venetie

COUNCIL MEMBERS

Christian Tritt, Sr.
VenetieJohn Titus
Arctic VillageTrimble Gilbert
Arctic Village

The Honorable Henry M. Jackson
United States Senator
Chairman - Committee on Energy
and Natural Resources
Washington, D. C. 20510

Arctic Village

Dear Senator Jackson:

We request that the following statement be included in the record of the workshop to be held February 17, 1978, in Anchorage, Alaska, on the uses of the D-2 lands in Northeastern Alaska:

In 1957 we petitioned for additional lands for subsistence use to be added to our Reservation. Accompanying historical documents support the necessity of our request.

The Petition was summarily set aside and never considered by the Bureau of Indian Affairs. Nor was it considered by the Department of Interior prior to the passage of the Alaska Native Claims Settlement Act.

Historic subsistence use of the lands and waters adjacent to the Reservation are recited in Report on the Cultural Resources of the Doyon Region, Central Alaska, Volumes I and II, by Elizabeth F. Andrews, October 1977, pp. 102-122 and 223-273, herewith submitted for inclusion in the record. There are 93 well defined settlements/camps and significant grave sites identified within the Report.

A portion of the requested land, containing 14 traditional settlement/camps, falls within the Arctic Wildlife Refuge. The inclusion of that portion within our Reservation is consistent with the designation of the Arctic Wildlife Refuge for traditional subsistence use.

We have a prior claim to the use of the land, water and natural resources.

Arctic Village, Alaska 99722 • Telephone (907) 587-8001

Venetie, Alaska 99781 • Telephone (907) 849-8001

The Honorable Henry M. Jackson
February 16, 1978 - Page 2

The aboriginal inhabitants of these lands have managed the resources for thousands of years. The ecology of these lands is endangered because of the efficiency of transportation and the use of the natural resources for sport rather than subsistence. The pressure to the ecology by an increasing population will continue. ~~Decisions must be made about who~~ will use the land for what purposes based upon the recognition of aboriginal subsistence use of the lands, waters and natural resources.

Lands set aside for public use under Sections D1 and D2 of ANCSA must have subsistence use - hunting, trapping, fishing, plant and berry gathering - as the first priority. If the Federal Fish & Wildlife determines that there are an abundance of these resources - enough animals, plants and berries to withstand the pressure of nonsubsistence utilization - the resources could be opened to individuals for limited sport hunting and fishing for personal use.

Secondarily, the resources could be utilized, on a permit basis, in areas not being seasonally utilized for subsistence, by ~~persons for~~ ^{Christian} camping, hiking, flora and fauna observation and photography.

To insure the survival of the Native inhabitants and their subsistence based culture, the Natives of Alaska must be given priority in their use of the lands, waters and natural resources.

Jurisdiction over the lands and resources must be vested in the Federal Government. The Federal Government has the responsibility of assuring the survival of the aboriginal inhabitants and their cultures.

We need the land to live.

GIDEON JAMES, First Chief

NATIVE VILLAGE OF VENETIE TRIBAL GOVERNMENT
for the Venetie Indian Reservation, Alaska

Notification of Petition

22 July 1957

WE....The undersigned resident native indian people of Arctic Village, living in the Venetie--Arctic Village Reservation, wish to have an increase grant of land added to our reservation.

<u>George Tritt</u>	Chief of Village
<u>William Williamson</u>	Second Chief
<u>Orestes Tritt</u>	Chief Council Man
<u>Alfred Tritt</u>	Council member
<u>Elias Josses</u>	" "
<u>Timothy Gilbert</u>	" "
<u>James Gilbert</u>	" "
<u>Abraham John</u>	Secretary of Council



Voting residents of Arctic Village

<u>Maggie Gilbert</u>	<u>an aryl williamson</u>	<u>Eunice Tritt</u>
<u>Harold Tritt</u>	<u>Kias Peter</u>	<u>Katherine Peter</u>
<u>Neil Henry</u>	<u>Ernest John</u>	<u>Alice Peter</u>
<u>Gilbert Joseph</u>	<u>Stephen Peter</u>	<u>Lilly Tritt</u>
<u>Peter & Chazon</u>	<u>Alvin Henry</u>	<u>Helen Tritt</u>
<u>Mary Francis</u>	<u>Mary Henry</u>	<u>Ellen Tritt</u>
<u>Paul & Yvonne</u>	<u>Allen Tritt</u>	<u>Peter Tritt</u>

The reasons for this request of additional lands are as follows.

When the representatives of the Government formed the reservation none of the people of this area knew of the meeting. We had no chance to tell what lands we used to feed us and support us. The reservation formed gives us the land that our village sets on but does not include the land to the west and north that we use as our fishing and hunting camps, or where we trap.

The boundaries of these lands are as follows on the next page.

walter John First Chief	William John
David Henry Second	Sarah John
Mr. Price Secretary	William Frank
Chairman	Annie Frank
William Christa Councilman	Emma Roberts
Leah Drue	Wegge Erick
Lore John	John O. Erick
leen Henry	Daniel Roberts
	Marie Roberts
	John O. Goller
Daniel Simple	
Miss Christian	
Miss Sam	
Miss Sam	
Margaret Sam	
Miss Rachel Christian	
Miss Robert	
Baggie Roberts	
Miss Frank	
John O. John	
John O. John	
John O. John	
John O. John	

1 Sam Roberts
 2 Nash Pitt
 ' Abraham Henry
 t. Aguk like gum
 J. L. R. R. R.
 Arthur Jones
 Annie James
 Isob Flitt

Proposed Description of extension of Reservation Area

---the people of Arctic Village, wish to have the new reservation boundaries to start at the following points as taken from the Arctic Alaska Quadrangle, U.S.G.S Map; N6800-W1400/ 60 by 180.

Starting on the West bank of the East Fork of the Chendalar River, where the 68 degree 00 Min. latitude crosses the river and following the latitude line due West to the intersection of 147 degrees West & 68 degrees North.

From this point of intersection, the boundary line then bears due North to approximately 68 degrees 33 min. North, or where the crest of the Philip Smith Mountains intersects 147 degrees west.

The boundary line then swings East and slightly North following the divide of the water sheds; with the Junjik, and tributaries; and the East Fork of the Chendalar and tributaries within the boundary.

This boundary, bearing East by slightly North along the crest, cuts the 69 degree north parallel at approximately 144 degrees 23 min. West.

From this point of intersection the boundary then swings due East to the intersection of 144 degrees West and 69 degrees North.

From this point the boundary swings due East to where Peter John Creek and the Sheenjek River split. At this fork the West bank of the Sheenjek begins to serve as a boundary, and does so as far down stream as the forks of the Sheenjek River and Old Woman Creek. At this fork the South bank of the Old Woman Creek serves as a boundary. The boundary goes up Old Woman Creek's South bank and follows the left creek, flowing into Old Woman creek, approximately five miles from the mouth of Old Woman Creek.

The Boundary follows this unnamed creek to its source and continues on up to the top of Index Mountain. The Boundary follows the Crest of the Index Mountain group South, by South West, to the Point Where Konees River and the 68 degree North Lat. intersect.

From this point the boundary goes West to intersect with the present boundary of the reservation. From this point the boundary goes due North along the present lines

of the reservation to where the present boundary intersects Trill Creek. The boundary then follows the North shore of Trill Creek to its mouth and then South along the West bank of the Chundalar River to the starting point at 65 degrees North and 145 degrees, 50 min. West.

This Area would include Snake Mountain, Nest Rock, Ottertail Ridge, Misty Mountain, Little Njoo Mtn., Nichenthrow Mtn., Signal Mtn., Titus Mtn., Ambros Williams Mtns., and the South slopes of the Philips Smith Mtns.

In these mountains we people hunt caribou and sheep. In these mountains we hunt bear, and wolf. These mountains are the breeding grounds of the caribou we hunt to eat.

In this area are found are many trapping and fishing camps. Here on the Crandalar, the Junjik, and the Sheenjek we have built our trapping cabins. In the many lakes and streams along these rivers we hunt roose, and ducks. We cut our fire wood along these streams.

Here is where we people net our fish, hunt rats, trap beaver. This is the land of our forefathers and this is the real land of the people of Arctic Village, and not the land given to us to the South that means nothing to us.

VERY DIRECTOR GENERAL ALBERT

RE: ARCTIC VILLAGE OF ALASKA

1.00 75 729

Air Mail

January 20, 1950

Commissioner, Bureau of Indian Affairs

Washington 25, D. C.

Attention: Realty

Dear Sir:



You will find enclosed a petition signed by the Native Indian people of Arctic Village, Alaska, requesting an increase in the size of the Venetie-Arctic Village Reservation. You will also find enclosed a map showing the additional area requested.

On May 20, 1943, a proclamation was issued by the Department designating as an Indian Reservation, for the use and occupancy of the Native inhabitants of the villages of Venetie, Arctic Village, Christian Village and Robert's Fish Camp and vicinity covering an area of approximately 1,408,000 acres.

350
This reservation was accepted by a unanimous vote of the Native people at elections held on March 1, 1944, at Venetie, Arctic Village, Christian Village, Robert's Fish Camp and Sooko.

In the Natives' petition they have requested that the reservation include approximately 2,000,000 additional acres of land located northerly from the existing reservation and covering their fishing and hunting camps and trapping areas. You will notice that they state in their petition that when the present reservation was formed none of the people in the Arctic Village area knew of the meeting.

The petition which requested the establishment of the existing reservation was signed by several of the Natives of Arctic Village who also signed the enclosed petition.

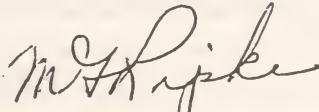
Since the reservation was accepted by a unanimous vote of the Natives of Arctic Village on March 1, 1944, it appears that the Native people residing in the village at that time must have known the size of the present reservation when they voted to accept it.

It is our understanding that a considerable number of the present Native residents at Arctic Village have moved there since the reservation was established. These Natives undoubtedly need and use the additional area requested as a reservation but it is located many miles from any non-native settlements so it is doubtful whether they would have much interference in their use of the area for fishing, hunting and trapping.

The authority for the establishment of an addition to the above mentioned existing reservation is contained in the Act of May 1, 1936 (49 Stat. 1250), however, it is our understanding that it is not the present policy of the Department to establish additional reservations for Natives in Alaska.

The enclosed petition is being submitted to you for appropriate action pursuant to the existing policy of the Department. Please advise this office if you desire that an investigation be made at Arctic Village on the request for an addition to the reservation.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "M. G. H. Pike". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Acting Area Director

Enclosure

Mr. William H. Olsen

Area Director, Juneau, Alaska

Dear Mr. Olsen:

This refers to the Acting Area Director's letter of January 20, with its enclosure, concerning the addition of approximately 2,000,000 acres to the Venetie-Arctic Village Reservation, Alaska.

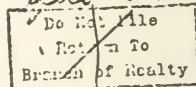
In view of the fact that the natives are using the area requested for fishing, hunting, and trapping without interference from the non-natives, there appears to be no urgent need to set aside the area as an addition to the present reservation. In any event, no additional reservations are proposed to be created in Alaska until after public hearings have been held. Under the above circumstances, the Department would not be disposed to call for public hearings at the present time.

We are, therefore, filing the petition without further action. However, if there is a possibility within the foreseeable future that the influx of non-natives in the area might seriously jeopardize the hunting, fishing, and trapping opportunities of the natives or if it is ascertained that the livelihood of the natives is dependent upon the area, the matter will receive further consideration.

Sincerely yours,

Commissioner

WETHomas:cgb 4/24/58



GEOGRAPHIC SETTING

The geographical area inhabited by the Kutchin Athapaskan-speaking Indians in Alaska exhibits a variety of features. The most prominent feature within this area is the great Yukon Flats, an alluvial lowland, which extends some 200 miles along the Yukon River from Stevens Village to Circle and also up the Porcupine River as far as New Rampart near the Alaska/Yukon border. This broad, densely timbered plain varies in width from 40 to 100 miles (Brooks 1906:40). It is characterized by a low relief with maximum altitudes of 500 feet, numerous lakes and sloughs, a diverse forest cover consisting of spruce, birch and aspen as well as dense thickets of willow along the lakes and sloughs (Nelson 1973:24). In contrast to the Yukon Flats, the plateau upland which surrounds it makes a gradual transition on the south from the lowland floor to the peaks of the White and Crazy mountains typified by a 3500-foot altitude. To the north of the Flats, the topography rises to an alpine area with an altitude of about 3000 feet in the southern foothills of the Brooks Range where mountain peaks rise as high as 6500 and 8000 feet (McKenna 1965:17). This alpine area is characterized by its lack of timber.

The Yukon River and its tributaries represent the major waterways in this subregion. Flowing into the Yukon from the east is the Porcupine River with its major tributaries--the Coleen and Sheenjek rivers from the north and the Black River from the southeast. Further west, the Christian, Chandalar, Hodzana and Dall rivers enter the Yukon from the mountains to the north while Birch and Beaver creeks meander across the Flats to the south.

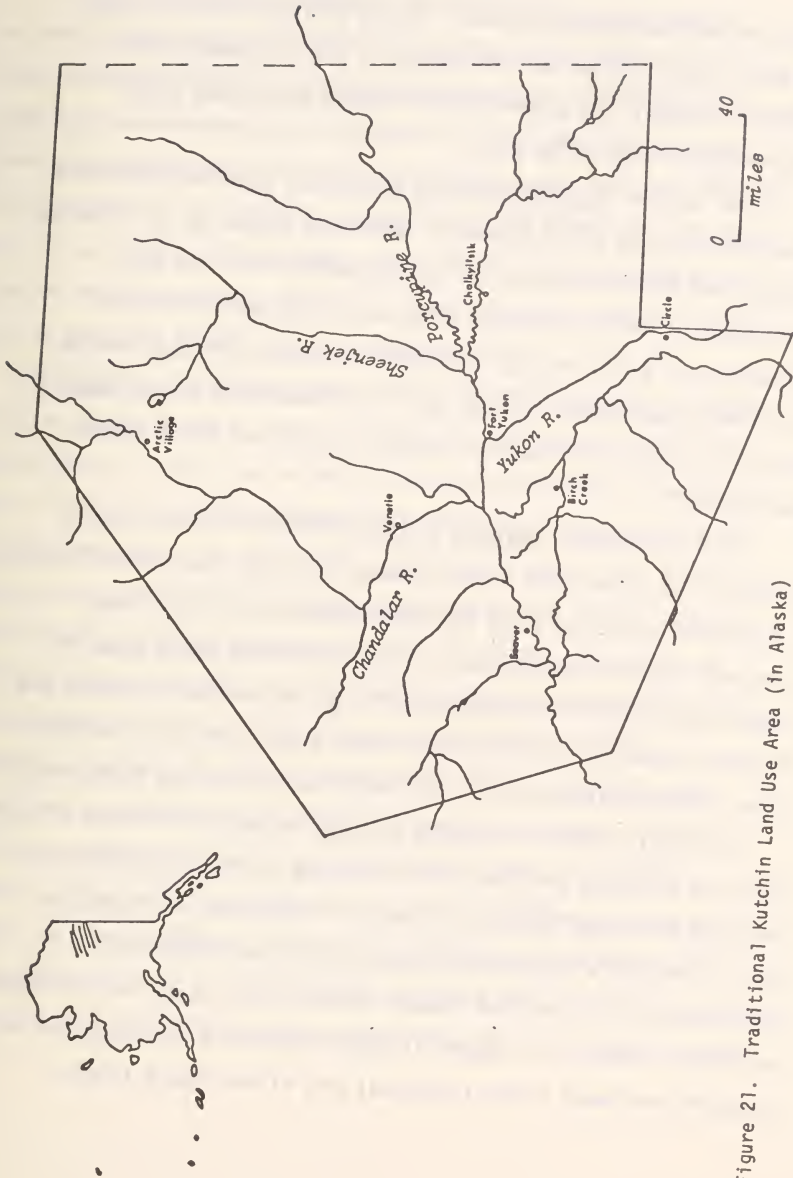
Similar to other areas of interior Alaska, the continental climate of this subregion is characterized by maximum and minimum temperatures of 100°F. and -75°F. respectively, with an annual precipitation of 17 inches (Joint Federal State Land Use Planning Commission 1973).

The Kutchin geographic area in Alaska is represented on the following U.S.G.S. quadrangle maps (1:250,000): Arctic, Beaver, Black River, Chandalar, Christian, Circle, Coleen, Fort Yukon, Philip Smith Mountains, Table Mountain, and Wiseman.

The historic Kutchin native land use area in Alaska is approximately 36,800 square miles (Fig. 21). This figure is based on the inventory of historic and cemetery sites as well as ethnographic sources which are presented below.

NATIVE INHABITANTS

Athapaskan Indians of the Kutchin subregion traditionally occupied a large area in interior Alaska extending roughly from the Middle Fork of the Koyukuk and the drainage of the Chandalar River, east to the drainages of the Sheenjek and Coleen rivers, the environs of the lower Porcupine and Black rivers as well as the entire Yukon Flats region. Ethnographic work in this area has resulted in the delineation of five areas in which groupings of the traditional Kutchin population established settlements and camps as they undertook subsistence activities within a certain area (Osgood 1934, Hadleigh-West 1959). The Dihai Kutchin (Dihaij Gwich'in) occupied the upland region between the Middle Fork of the Koyukuk and the Chandalar River south to the hills north of the present villages of Stevens and Beaver. Traditional settlements of the Dihai are unknown at present since the Dihai population was forced east from warlike



relations with neighboring Eskimos. The few survivors resettled among the Netsi Kutchin during the last quarter of the nineteenth century (McKenna 1965:24). No modern Kutchin villages are present within the traditional area of the Dihai.

Netsi Kutchin (Neetsaji Gwich'in) established camps and settlements along the East Fork of the Chandalar, the middle reaches of the Christian, Sheenjek and Coleen rivers and in the intervening hills. The main settlements of the Netsi Kutchin in the early historic and historic period were at Arctic Village, Christian, and Venetie although hunting and fishing camps within the area were also inhabited on a more temporary basis. Contemporary villages of the Netsi Kutchin are Arctic Village and Venetie.

The Kutcha Kutchin (Gwichyaa Gwich'in) inhabited the east central portion of the Yukon Flats roughly between the lower limits of the Chandalar and Sheenjek rivers and along the Yukon southeast to Circle. Semi-permanent camps were maintained in this area although people began to consolidate about Fort Yukon beginning in the mid-nineteenth century with the establishment of a trading post at that site. Fort Yukon continues to be the main settlement within the traditional area of the Kutcha Kutchin.

The Tranjik Kutchin (Dr'aanjik Gwich'in) occupied settlements and camps along the Porcupine and Black rivers in Alaska as well as in the hills and along the larger lakes of the region. Traditional semi-permanent camps in the early historic and historic period were located at Shuman House, Burnt Paw, Old Rampart, Bluefish Lake, Ohtig Lake, Chalkyitsik and Salmon Village. The modern village of Chalkyitsik represents the only permanent settlement in the traditional area of the Tranjik Kutchin.

Dendu Kutchin Indians traditionally occupied most of the area of the Yukon Flats south of the Yukon River to the northern extent of the Crazy and White mountains of the Yukon-Tanana Upland. Semi-permanent camps were located primarily in the area of Birch Creek, on the larger lakes and at the upper and lower mouths of Birch Creek. The small village of Birch Creek is the only modern community clearly within the traditional area of the Dendu Kutchin although recent ethnographic data tends to show that the vicinity east and south of the modern village of Beaver was once part of the Dendu Kutchin territory (Schneider 1976).

Population. Population figures for the Kutchin subregion in Alaska indicate about 540 native residents during the last quarter of the nineteenth century. These figures apply to Kutchin groups which occupied the area at that time--the Netsi Kutchin, Kutcha Kutchin, Tranjik Kutchin and possibly the Dendu. The 1880 census of the United States cited a native population of 120 for the Netsi Kutchin and 107 at Fort Yukon (probably mostly Kutcha Kutchin but also composed of Kutchin from other areas as well) (Petroff 1884:12). The 1890 census reported the population of the Black River (Tranjik) settlements as 125 and the Porcupine River (probably also Tranjik Kutchin) as 150 (Porter 1893). The 1890 census also cited a population of 40 at Senati (named for a renowned chief of the region--Shahnyaati') which was located in the area of the Dendu Kutchin. These early census figures were not derived from any systematic method nor with any attempt to reach all settlements in the region, thus, a composite figure of 540 would probably best be viewed as the lowest number of native residents in the Kutchin region during the early historic period.

Annual Subsistence Cycle.³ Throughout the course of a year, the Netsi Kutchin established semi-permanent settlements which served as base camps and storage places while food sources were pursued. The focus of subsistence activities was on the hunting of large game especially caribou, although sheep, bear and musk oxen were also important in earlier times. During the spring and fall migrations of caribou travelling in herds, Netsi Kutchin gathered at caribou fences as essentially every member of the community participated in the acquisition and processing of this resource (McKenna 1965:31, 32; Hadleigh-West 1963). During the winter, big game hunting was supplemented by fishing through the ice and the taking of beaver. Fishing was also important in the summer as was procuring ducks, geese and berries with sheep hunting in late summer. Throughout the year small game such as squirrel, ptarmigan, rabbit and porcupine were also sought after.

FEATURES OF SETTLEMENTS

Houses. The Netsi Kutchin constructed a variety of shelters ranging from semi-permanent log and sod houses to overnight shelters made of snow. One type of semi-permanent two-family structure was constructed by placing blocks of sod on a rectangular log frame which consisted of vertical posts with a gable roof built by lashing timber rafters to a ridge pole

³The presentation of the annual cycle and features of settlements for the Kutchin is derived solely from information pertaining to the Netsi Kutchin due to the lack of extensive data on these aspects of culture of other early historic Alaskan Kutchin groups. The reader is advised to be cognizant that the subsistence emphasis for the Netsi Kutchin was not necessarily the same among the other groups.

(McKenna 1965:43). Another two-family structure was hemispherical in shape constructed by covering a frame of bent willow with caribou skins sewn together. In the winter snow was banked around the base of the house. Temporary shelters consisted of "conical skin-covered teepees" and lean-tos made with a caribou skin or moss and sod covering. Overnight snow shelters were made when ice fishing (McKenna 1965:43).

Caches. The Netsi Kutchin traditionally employed three types of caches during their seasonal round of activities. Such caches were observed near abandoned caribou fences during a recent study to locate and document those fences of the Netsi Kutchin (Roseneau et al. 1975). The "single pole cache" was a platform some 6 feet square that was constructed of poles about 12 to 18 feet above ground in a tree (Fig. 22). The pole cache served as a storage place for material items--snares, spears, arrows, scrapers--necessary in the acquisition of caribou at the nearby fences (Roseneau et al. 1975).

Log caches were constructed on the ground for the storage of meat. The dimensions of log caches found in the region revealed a rectangular design about 4 to 5 feet wide and 8 to 10 feet long with a height of 3 to 4 feet (Roseneau et al. 1975). The floor and flat roof of the structure was also made from logs. In areas above timber line, one example of a stone cache was found. The cache had been constructed by excavating a hole 4 to 5 feet into the ground and 7 feet across, the walls and floor of which were lined with rock (Roseneau et al. 1975).

In historic times, log platform caches were constructed on four vertical poles some 8 to 12 feet above the ground and were rectangular in shape--4 feet by 8 feet with sides 1 to 3 logs high (Roseneau et al. 1975).

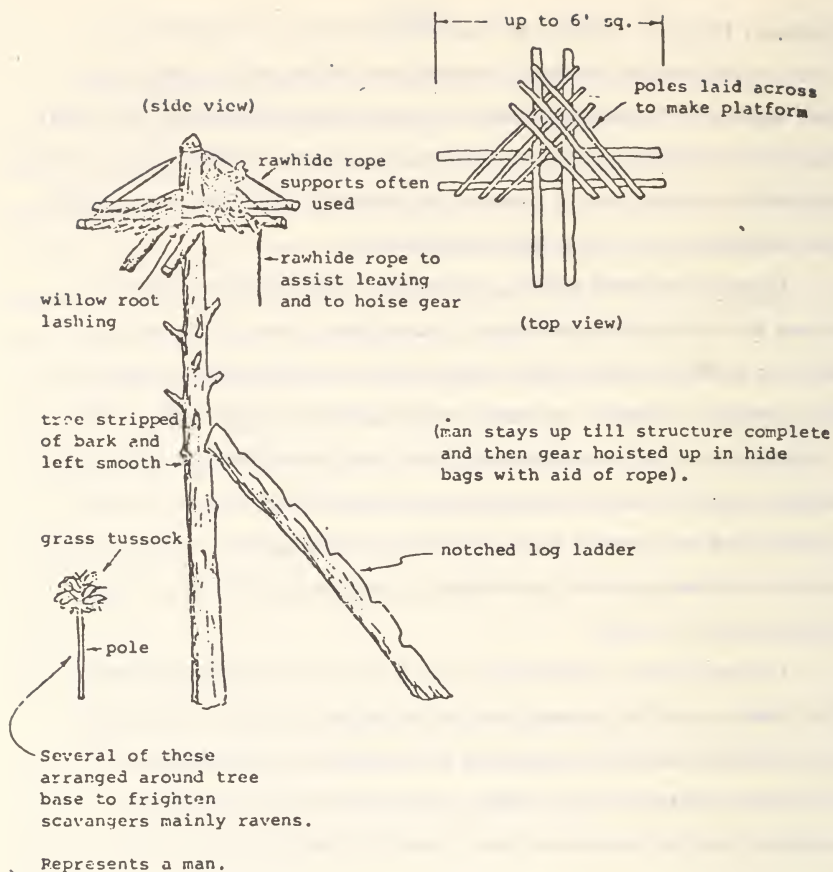


Figure 22. Single Pole Cache (from Roseneau et al. 1975:43)

This type of cache was never found near the caribou fences.

Burial. Interment of the dead was the primary means for disposal of bodies in traditional times. The body was flexed and placed in a grave lined with poles which was then covered with a mound of stones (McKenna 1965:59). A vertical pole with a carved figure at its tip was then placed at the grave site. Unlike other Northern Athapaskan groups, cremation was less common and seemed to be a practice reserved for the wealthy deceased (McKenna 1965:59). The ashes and bone remains were placed in a skin bag which was then either covered with rocks on the ground or tied to a tree top. Following the introduction of steel axes, burial was often on an elevated platform which rested on four posts or was lashed to two trees (McKenna 1965:60). A coffin was constructed by splitting a large log, the two pieces of which were hollowed out so as to accommodate the body.

Other Structures. Butcher houses (shya) were constructed by the Netsi Kutchin near their caribou fences. These structures were built from spruce timbers which were set so as to form a conical structure above the ground. The structures functioned as a place where women butchered meat which had been brought there from the kill site at the nearby caribou fence (Roseneau et al. 1975). The number of butcher houses near a fence was found to range from as many as four to a single one found near one fence.

Thirty-seven caribou fences in Alaska in the traditional area of the Netsi Kutchin were recently documented and revealed a structure which played a significant role in the acquisition of caribou. The basic

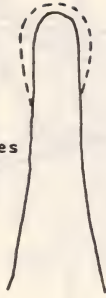
design of most of the fences located was a funnel design with "two converging drift or wing fences" which terminated "in a relatively narrow, long ovate or more often, rectangular corral" (Roseneau et al. 1975). Most fences were found to have been elaborated on by the addition of "hooks," "small blind corrals which opened off the main corral" (Fig. 23) (Roseneau et al. 1975). Virtually all members of the group assisted in the construction of the fences (Fig. 24). Snares were then set to the inside of the fences in the corral area of the structure and sometimes set across the openings of the hooks (Figs. 25, 26).

ARCHEOLOGICAL INVESTIGATIONS

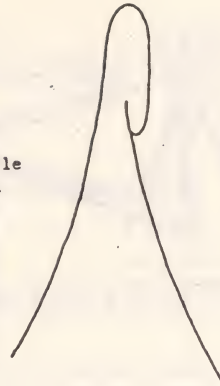
Archeological studies within the vast area of the Kutchin in Alaska have been limited to two relatively small areas. During the early 1960's a brief investigation was made in the vicinity of Circle on the Yukon River by F. Hadleigh-West and in 1972 an archeological survey of Old John Lake near the southern foothills of the Alaska Range was undertaken by E.S. Hall, Jr. and R.A. McKennan. Both of these investigations revealed primarily prehistoric material, the products of earlier populations in the Kutchin area, however, there is no evidence at present that this material was the work of the progenitors of the Kutchin Athapaskans. A recent study of the location and construction of caribou fences in the Kutchin area north of the Yukon River in Alaska (Roseneau et al. 1975), however, provides significant information on the techniques and materials used by the direct ancestors of modern Kutchin in the acquisition of caribou.

During the summer of 1963 and part of 1964, F. Hadleigh-West (1965) directed an archeological survey and excavation in the Yukon Flats, within

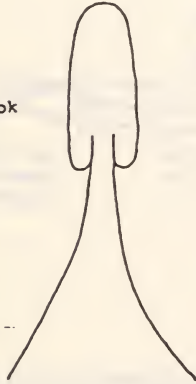
Simple basic
design. Sometimes
expanded at the
apex.



Single
hook



Opposing hook



Alternate
hook

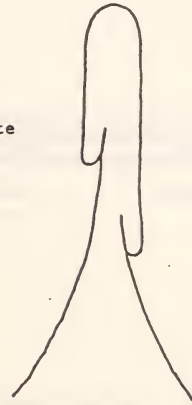


Figure 23. Designs of Kutchin Caribou Fence Corrals (from Roseneau et al. 1975:19)

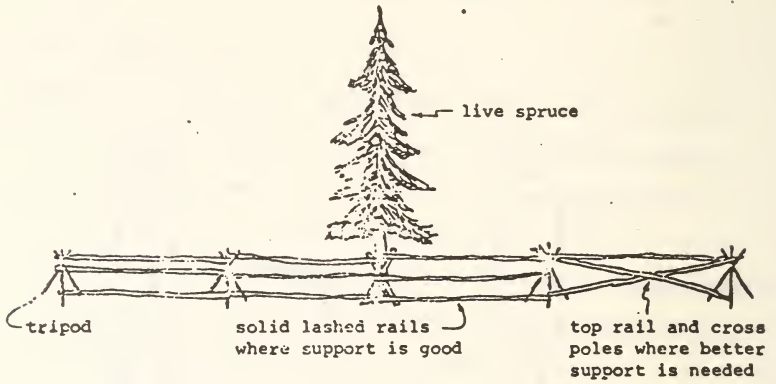
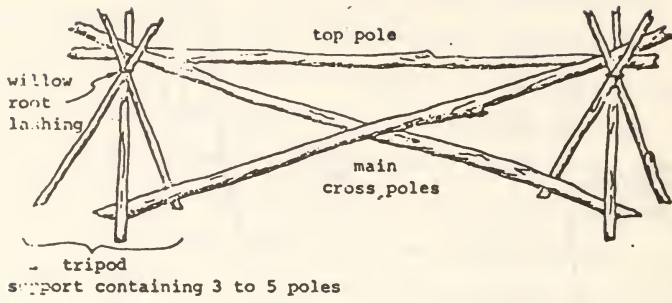


Figure 24. Caribou Fence Construction (from Roseneau et al. 1975:11)

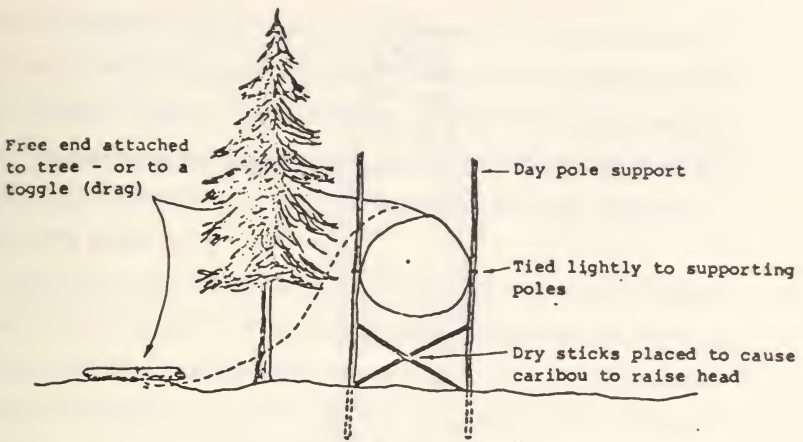


Figure 25. Snare Set (from Roseneau et al. 1975:29)

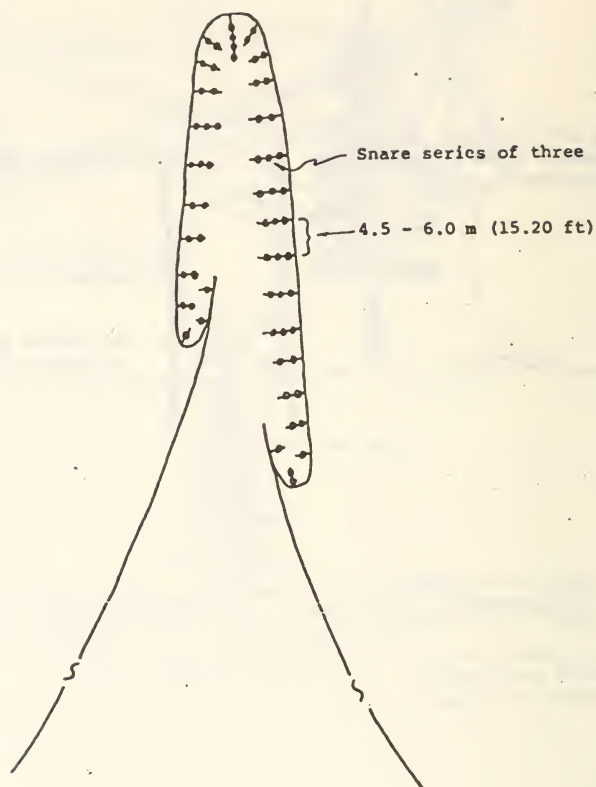


Figure 26. Positioning of Sets of Snares in a Caribou Fence
(from Roseneau et al. 1975:31)

the area which was then designated as the Rampart Dam Impoundment area. This survey revealed several prehistoric sites as well as some possibly late prehistoric sites. All sites which revealed archeological material were located in the vicinity of Circle on the Yukon River and along Birch Creek, with the exception of one site located on the lower Porcupine River.

Four sites were located in the vicinity of Circle in 1963, three of which are situated along the Yukon River. Approximately $6\frac{1}{2}$ miles above Circle at the site of a reportedly abandoned fish camp, were only the remains of a hearth area which contained fire-cracked rock and charred bone fragments. At Twelve Mile Bluff, 12 miles below Circle, a prehistoric site which contained lithic material was found in 1963 and more extensively excavated in 1964. This subsurface site at the eastern limit of the Yukon Flats revealed culture material concentrated mostly between 5 and 10 inches below the surface (Hadleigh-West 1965). The artifact inventory consists of side-notched point fragments, bifacially flaked knives, end scrapers, side scrapers, notched pebble axes, graters and lithic debitage, all manufactured predominately from chert (Hadleigh-West 1965). No charcoal or calcined bone samples were present with which to radiocarbon date the site, however, the cultural material from Twelve Mile Bluff does resemble Tuktuk material which has been radiocarbon dated at 4500 B.C. at Anaktuvuk Pass (Campbell 1965) and during the first millenium A.D. at Healy Lake (McKenna and Cook 1968). Unlike the Tuktuk material at Anaktuvuk, Twelve Mile Bluff bears no indication of a core and blade industry and in this respect is similar to the Palisades complex of northwestern Alaska dated at Onion Portage around 3900 B.C. (Anderson 1968).

Fire-cracked rocks were found closer to the surface at Twelve Mile Bluff and it is likely that these rocks, once used as boiling stones are associated with a late prehistoric or early historic occupation of the site (Hadleigh-West 1965).

About one-half mile below Twelve Mile Bluff, three waste flakes were found at one locality.

At Medicine Lake on a small peninsula burned rock and calcined bone were recovered from the surface. This site was located near an Indian cabin which was used at the time of the survey (Hadleigh-West 1965). Similarly, in 1934, localities at Medicine Lake revealed small refuse deposits and hearths, but no artifacts (Rainey 1939).

Four sites were located along Birch Creek within 20 miles of the Steese Highway bridge crossing Birch Creek. The most substantial of these sites contained over 300 waste flakes, while another consisted of one flake. The two other sites which were both located on gravel bars consisted of over one hundred "pebble" pieces mostly of chert, however, it remains questionable whether these "pebbles" are the products of human manufacture (Hadleigh-West 1965).

About 15 miles below Burnt Paw on the Porcupine River six waste flakes and the base of a lanceolate point were collected from the surface. No date or cultural affinities can be assigned to the material.

Three early historic and historic fish camps in the Fort Yukon area were visited by Hadleigh-West (1965) but no archeological material was apparent. Recommendations were made for a more detailed investigation of the localities.

Forty-two prehistoric localities around Old John Lake were found by Hall and McKennan during their archeological survey along the northern and eastern limits of the lake. A variety of archeological material primarily of chert was excavated and included such artifacts as end scrapers, bifaces, burins, microblades, Campus-type cores (see Rainey 1939), core tablets, side-notched projectile points and bases, and a denticulate slate fragment (Hall and McKennan 1973). Dating of the material is uncertain because, as the investigators noted, there are few other archeological collections that the material can be compared to (Hall and McKennan 1973), although side-notched points have been dated at 4500 B.C. at Anaktuvuk Pass (Campbell 1965) and during the first millenium A.D. at Healy Lake (McKennan and Cook 1968). Several historic Kutchin camps indicated by cabins, caches, tent frames and cooking tripods were also located during the survey.

Between 1971 and 1973, thirty-seven caribou fences of the Kutchin Athapaskans in Alaska were located during a biological study of the Porcupine caribou herd (Roseneau et al. 1975). All of these fences with a funnel design and a pole and log constructions are located within the area traditionally inhabited by the Netsi Kutchin (see earlier section on native inhabitants). Associated with many of the fences were found numerous log meat and tool caches as well as butcher houses. Many of the structural remains of the fences as well as the adjacent cache and butcher structures date to the early historic period and probably earlier as these structures featured extensively in the Kutchin method for the acquisition of caribou prior to the introduction of the repeating rifle during the late nineteenth century.

HISTORIC AND CEMETERY SITES--INVENTORY AND RECOMMENDATIONS⁴

Historic and cemetery sites inventoried for the region of the Netsi Kutchin numbered ninety-three.⁵ Over one-half of these sites were reported by native residents to the author during field trips to the villages of Arctic Village and Venetie. The remainder were provided by D. Roseneau who, with several others, located numerous caribou fences and caches in the region (Roseneau *et al.* 1975). Tabular information on the types of sites and the land status is presented below.

Table 7. Types and Land Status of Netsi Kutchin Sites Inventoried

<u>Type of Site</u>	<u>No.</u>	<u>% Total</u>
Traditional Settlement/Camp	28	30
Gravesite (not adjacent to above)	24	26
Caribou Fences	29	31
Caches	6	6.5
Other	<u>6</u>	<u>6.5</u>
Total	93	100

⁴The presentation of historic and cemetery site information for the Kutchin coincides with subdivisions of the Kutchin as presented earlier.

⁵This information does not include historic and cemetery sites of the Netsi Kutcin located within the boundaries of the former Venetie Indian Reservation. Sites within the former reserve could not be selected under 14(h)(1) of ANCSA and native residents of the area requested that the site information be withheld temporarily.

Table 7 (continued)

<u>Land Status</u>	<u>No.</u>	<u>% Total</u>
Village Selection	0	0
Regional Selection	0	0
D-1	41	44
D-2	13	14
State Selection (prior to ANCSA)	7	7.5
Wildlife Range	14	15
Utility Corridor	11	12
Regional Deficiency	<u>7</u>	<u>7.5</u>
Total	93	100

Eighty-seven percent of the Netsi Kutchin sites inventoried represent traditional settlements/camps, caribou fences or graves. These sites are primarily located along the major streams in the region, on lakes and at strategic points in the hills and mountains (Fig. 27). The relative remoteness of most of the sites inventoried for the Netsi Kutchin perhaps provides a temporary means of site preservation. With the possibility of a gas pipeline route across some of the region, however, some of the cultural resources are likely to be impacted by the development of the energy corridor. Also, many unreported and prehistoric sites probably exist along the route as well as elsewhere in the region. In the event of the development of this utility corridor, an archeological survey and excavations along the route would be required by law. Such a survey then should include identification, evaluation and preservation of the known sites as indicated

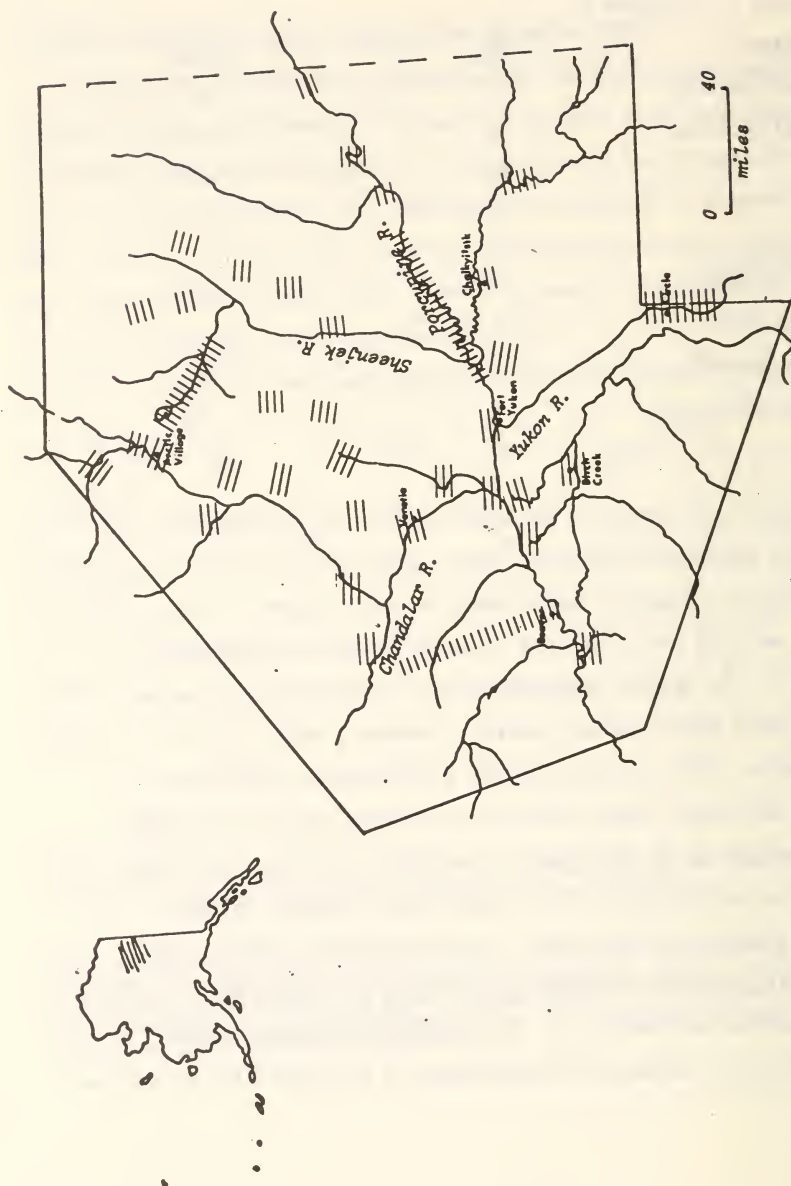


Figure 27. Distribution of known Kutchin Sites (in Alaska)

in this inventory.

Tranjik Kutchin. Thirty-six historic and cemetery sites were inventoried in the area of the Tranjik Kutchin. These sites were reported by native residents to the author during field trips to Chalkyitsik and Fort Yukon. Information on the types and land status of the sites inventoried is presented below.

Table 8. Types and Land Status of Tranjik Kutchin Sites Inventoried

<u>Type of Site</u>	<u>No.</u>	<u>% Total</u>
Traditional Settlement/Camp	26	72
Gravesite (not adjacent to above)	3	8
Prehistoric Locality	<u>7</u>	<u>20</u>
Total	36	100
<u>Land Status</u>		
Village Selection	2	6
Regional Selection	2	6
D-1	7	19
D-2	22	61
Other	<u>3</u>	<u>8</u>
Total	36	100

Seventy percent of the Tranjik sites are represented by traditional settlements and/or camps belonging to the historic and early historic periods while many would possibly reveal a late prehistoric human

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ANY 2
2. a. Indian Name of Site _____
b. English Name of Site New Bonasila
c. Variations Paradise, delict'it (delaguna)
3. Map Reference HOLY CROSS 62°25'00"N/160°03'12"W
12N/R58W
4. Land Status Federal d-1, Thelive allotment

COMMENTS

This village site and its associated cemetery were recently reported as important in the history and culture of many people currently residing in Anvik. Delaguna (1947:71) notes that the site was settled in 1959 after Old Bonasila (see ANV 1) was abandoned due to a measles epidemic. In 1960, Rev. Chapman reported a population of 11 at Bonasila. When Delaguna (1947:74) explored New Bonasila in 1935 she observed 12 house pits and a kashim as well as "modern cabins" and graves. Although she did not think the houses were old, she added that natives reported finding stone adzes on the beach, indicating a prehistoric settlement. Delaguna, however, thought it would be difficult to locate. Further investigation of the site may reveal some of the houses to be old since a settlement of 12 houses could shelter more than a population of 11 (providing women are not absent from the village during the census). Nonetheless, the site is likely to yield important information on Ingalik culture prior to the transition to larger and culturally heterogeneous settlements elsewhere on the Yukon.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ANY 1
2. a. Indian Name of Site _____
b. English Name of Site Old Bonasila
c. Variations Naki Village (Zagaskia), Hiteymute (Petrors),
Maeymuit (1890 census), Natsen'anten (Jette), Tsenanon (Jette),
D-1, S-1, N-1, 2 (Delaguna)
3. Map Reference HOLY CROSS 62°26'53"N/160°05'11"W 27N/R58W
4. Land Status Federal d-1, Thelive allotment

COMMENTS

This abandoned village was a large settlement during the mid-1800's. Several people living in Anvik today can claim ancestry to this village. As early as 1843, Lt. Zagosin (Richard 1967) observed 3 winter houses and a population of 40 in the settlement. U.S. census (1880). L. Petro recorded 125 natives at the village while the eleventh census (1890) reported 80 natives and 12 houses. According to Delaguna (1947:71), the village was later abandoned in 1938 due to a measles epidemic and the people resettled New Bonasila (see ANV 2). On the basis of her investigations during the 1920's, A. Hedieltz (in Delaguna 1947:72) determined the occupation of Old Bonasila began in 1935. Historical times continued until Russian contact. In 1935, when Delaguna (1947:74) investigated the site, she observed 30 house pits and at least 1 kashim as well as numerous graves. During her limited excavations she recovered items of native and non-native manufacture and determined that the site was occupied in prehistoric as well as "modern" times. Because of heavy flooding and erosion of the site, she suspects the older house pits to have been washed away. All graves she observed post-dated 1867. This site is likely to yield very significant information on Ingalik culture. Further investigation could reveal whether any of the remaining houses are prehistoric. Nonetheless, the site could provide valuable information for several time periods and bring to light the interactions between Ingalik and Eskimo and Russian-American cultures as well as provide a picture of Ingalik culture in changing times.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ANW 6

2. a. Indian Name of Site _____
b. English Name of Site Yellow River
c. Variations _____

3. Map Reference Holy Cross $62^{\circ}55'00''N/160^{\circ}41'00''W$ T33N/R60W

4. Land Status ? Federal D-1

COMMENTS

It was reported recently that a village was located at the mouth of Yellow River. No details about the site could be obtained. Further oral and archeological investigation is necessary to determine the size and significance of the site.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ANW 7

2. a. Indian Name of Site _____
b. English Name of Site _____
c. Variations _____

3. Map Reference UNALAKLEET $63^{\circ}00'25''N/160^{\circ}43'58''W$ T29S/R11W

4. Land Status Federal D-1

COMMENTS

Recently the grave of a medicine man was reported at this location. No further details could be obtained.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number -- A57 27
2. a. Indian Name of Site _____
b. English Name of Site site
c. Variations "Under-the-rock" (Oogood)
3. Map Reference UTALAKLEST T7265, XIV S28
4. Land Status Federal 2-1

COMMENTS

This was a winter village of the Arvik Athapascans (Osgood 1951:28). It was located on the trade route from Arvik to St. Michael and Unalakleet via Otter Creek. This route was most significant during the 19th century for obtaining Russian and Eskimo trade items on the coast, although it was probably significant during earlier times as strictly an Eskimo-Indian trade route. Eskimos from Porton Sound came to the Indians territory to trade as well (Osgood 1951:27). In addition, this region is characterized by abundant caribou which would contribute to the maintenance of a permanent village in the Arvik bandwaters. Villages known to be significant in inter-regional trade and contact have rarely been archaeologically documented in Alaska and such a village as this could make a most significant contribution to the trading activities of native people in the past.

prepared by:

Elizabeth Adams
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number -- A5W 27
2. a. Indian Name of Site _____
b. English Name of Site Bonsaile Dome
c. Variations Nikolai Dome
3. Map Reference IOUY CROSS T764/R60N T26N/ R61W
4. Land Status Federal D-1

COMMENTS

During the 1973 Doyon inventory this site was reported as a battleground by native informants. No further information has been obtained about the site.

Deyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ANY 28
2. a. Indian Name of Site _____
 b. English Name of Site _____
 c. Variations Bonasila Winter Village, "Kalak-creek" (Osgood) _____
3. Map Reference IDOLY CROSS 62°25'00"N/159°58'48"W 127M/R5NW _____
4. Land Status Federal D-1 _____

COMMENTS

This was reported to me as the winter village of the Bonasila people. It was located at the mouth of a slough which connected to a place on the Imko about 12 miles below Shageluk. Although in the 1950's, C. Osgood reported this location, no statement was made as to the site or significance of the settlement. Further investigation is necessary to determine the cultural parameters of the site.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 2

2. a. Indian Name of Site _____

b. English Name of Site _____ Camp Site

c. Variations _____

3. Map Reference _____ ARCTIC T79/R30E border NEV/NNW

4. Land Status _____ Arctic National Wildlife Range

COMMENTS

A traditional camp site was located here in a popular share hunting area. Depending on the length of repeated occupation, the site could reveal information significant to the early history of the Neats' off Outch'in.

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

MAR 19/6

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 1

2. a. Indian Name of Site _____

b. English Name of Site _____ Cave Site

c. Variations _____

3. Map Reference _____ ARCTIC T75/R27E NW4

4. Land Status _____ Wildlife Corridor

COMMENTS

A cave site of undetermined age was reported at this location. Such shelters of human occupation have not been documented for this area and could make a significant contribution to the role of cave shelters in traditional native culture.

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

MAR 19/6

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 4
2. a. Indian Name of Site _____
b. English Name of Site Cave Site
c. Variations _____
3. Map Reference ARCTIC T95/R32E border 1054/504
4. Land Status Utility Corridor

COMMENTS

This site is important in the native oral literature of the area. It is reported to be the home of a "brushman", a native wild person who repeatedly would steal or capture native people who wandered too far from their own. A description of the site through on-the-ground observation could contribute significantly to the unknown habitat of these "brushmen".

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 3
2. a. Indian Name of Site _____
b. English Name of Site Meat Cache
c. Variations _____
3. Map Reference ARCTIC T75/R31E NW4
4. Land Status Arctic National Wildlife Refuge

COMMENTS

A large cache structure exhibiting native construction techniques was located on the west side of the Chandalar above Shoop Creek. The structure was used to cache meat and was described as being approximately 10 feet square and about 5 feet in height. Such structures are described in detail by Roseman et al. 1975.

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 6
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Red Sheep Creek #1 (Roseman's #131)
3. Map Reference ARCTIC T85/R31P SW6
4. Land Status Utility Corridor

COMMENTS

This is one of the many caribou fences of the aboriginal Neets'it'it' in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKenna in 1933 (see McKenna 1965).

A native cache and traditional camp have been observed at the fence (Roseman et al. 1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth Anderson
Natural Park Service
Dept. of Environment
University of Alberta
Edmonton, Alberta T6E 6G4

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 5
2. a. Indian Name of Site _____
b. English Name of Site Cave Site
c. Variations _____
3. Map Reference ARCTIC T85/R30E SW6
4. Land Status Utility Corridor

COMMENTS

A cave site of undetermined age was reported at this location. Such shelter of human occupation have not been documented for this area and could make a significant contribution to the role of cave shelters in traditional native culture.

prepared by:

Elizabeth Anderson
Natural Park Service
Dept. of Environment
University of Alberta
Edmonton, Alberta T6E 6G4

MAR 1976

PRELIMINARY INVENTORY

1. Site Number - ARV 7

2. a. Indian Name of Site _____
 b. English Name of Site Caribou Fence
 c. Variations _____

3. Map Reference ARCTIC T88/B31R IN4

4. Land Status Heilizer Corridor

COMMENTS

This is one of the many caribou fences of the aboriginal West's all Ouch'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them follows from their central role in the native culture. The role of caribou in their culture was well-documented by Robert McEwan in 1933 (see McEwan 1965).

Although the fence has not been investigated, it is likely that a traditional camp site was located near the fence since some meat and skins were processed following the caribou kills. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth Anderson
 National Park Service
 Dept. of Agriculture
 University of Alaska

PRELIMINARY INVENTORY

1. Site Number - ARV 9

2. a. Indian Name of Site _____
 b. English Name of Site Grave
 c. Variations _____

3. Map Reference ARCTIC T88/B31R IN4

4. Land Status Arctic National Wildlife Refuge

COMMENTS

An old oval grave made of logs is located here.

prepared by:
 Elizabeth Anderson
 National Park Service
 Dept. of Agriculture
 University of Alaska
 Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 10

2. a. Indian Name of Site _____

b. English Name of Site Grave

c. Variations _____

3. Map Reference ARCTIC T95/R31E SW44. Land Status Utility Corridor

COMMENTS

The grave of a native woman, Jennie Sloan, has been observed by many native people at this location. This woman reportedly died when she was approximately 115 years old. A birch fence was constructed around the grave.

prepared by:

Elizabeth A. Jones
Historical D. & S. Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6T 0A8

MAR 19/6

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 11

2. a. Indian Name of Site Vanunu Divliashikb. English Name of Site "Sheep Hill"

c. Variations _____

3. Map Reference ARCTIC T95/R31E SW44. Land Status Utility Corridor

COMMENTS

Vanunu Divliashik was a traditional camp as well as a place where Neata's off Ovich'in took advantage of the natural features of the terrain to get sheep. In August, near the camp, hunters would block the route of the sheep so that they could not turn back and had to run off the cliff to their death. The campsite could yield significant data on one aspect of Neata's off Ovich'in in culture in earlier times.

prepared by:

Elizabeth A. Jones
Historical D. & S. Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6T 0A8

MAR 19/6

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 12
2. a. Indian Name of Site Dilka'ah
b. English Name of Site Medicine Man's Cave
c. Variations _____
3. Map Reference ANGTIC T125/B30E NEK
4. Land Status D-2

COMMENTS

This site is significant primarily for the renowned medicine man who performed "miracles" in this cave. Heats'ell Owich'in would go to this spot where this man would disappear and then reappear wearing a red shirt. He would then throw large beads to the women who would have to pick them up quickly before they disappeared.

On the basis of the descriptions given by informants of the beads, these events probably occurred in the mid-1800's. Not only is their medicine man significant in the oral traditions of the people, but the site also seems to be associated with native events occurring as a result of contact with non-natives (i.e. the introduction of trade beads). In addition, if any archaeological remains could be found at the site, a most significant contribution to the life ways of such influential people as medicine men could be made.

prepared by:

Ernest Anderson
Native Dialects
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 13
2. a. Indian Name of Site _____
b. English Name of Site GEVKA
c. Variations _____
3. Map Reference ANGTIC T125/B30E JMS
4. Land Status D-2

COMMENTS

The grave of a man buried with a muskloaders was reported at this site. Muskloaders were used by the Beets'ell Owich'in during the third quarter of the 19th century.

prepared by:

Ernest Anderson
Native Dialects
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

NAR 19/6

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - AY 14

2. a. Indian Name of Site _____
 b. English Name of Site Grave
 c. Variations _____

3. Map Reference ARCTIC T138/B302 IM4

4. Land Status D-1

COMMENTS

This is the grave of an old native woman.

prepared by:

Elizabeth Anderson
 National Park Service
 Dept. of Anthropology
 University of Alaska
 Fairbanks, Alaska 99701
 MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - AY 13-1

2. a. Indian Name of Site Tulvildit
 b. English Name of Site _____
 c. Variations _____

3. Map Reference ARCTIC T138/B302 IM4

4. Land Status D-1

COMMENTS

This was a late 19th century seasonal settlement of the Nets'ell Ojich'in. It was one of the most important places for temporary habitation during the annual movements of the people. The site was primarily occupied in August by the older people of the culture who could not travel with the others to the nearby mountains for sheep hunting. At this site, the older people would be able to care for themselves by setting fish traps in the creek. It is significant in native oral traditions today which reveal the importance of this spot in the culture of the people. Many informants likened the importance of the site to the native people to the importance of the Pioneers Home to Alaskans. In addition, the site could also make a substantial archeological contribution to one aspect of Nets'ell Ojich'in culture which has already been ethnographically documented (Radligh-West 1963, McKennan 1965).

prepared by:

Elizabeth Anderson
 National Park Service
 Dept. of Anthropology
 University of Alaska
 Fairbanks, Alaska 99701
 MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 16
2. a. Indian Name of Site _____
b. English Name of Site Cemetery
c. Variations _____
3. Map Reference ARCTIC T125/R29Z BVS
4. Land Status B-2

COMMENTS

This cemetery contains the graves of three members of the Tetlit lineage of Arctic Village.

prepared by:

Elizabeth Anderson
Ph.D. Student
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99708

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 15-2
2. a. Indian Name of Site Uluksu Telli
b. English Name of Site "Fish Scale Hill"
c. Variations _____
3. Map Reference ARCTIC T138/R30E BVS
4. Land Status B-1

COMMENTS

Fish Scale Hill is associated with the old settlement at Tsivittit (see ARV 15-1). The area was so heavily utilized by the old people in fishing in the summer as well as by others in the spring/summer break-up that great quantities of fish scales can still be observed at the site. The importance at the site extends from early historic times (and perhaps earlier) into the 20th century and plays a considerable role in oral tradition about earlier times. In addition, the site could also make an archeological contribution to one undocumented aspect of Nea's all Oulch' in culture.

prepared by:

Elizabeth Anderson
Ph.D. Student
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99708

MAR 1976

PRELIMINARY INVENTORY

1. Site Number - ARV 17
2. a. Indian Name of Site Mitsidhe
b. English Name of Site Caribou Fence
c. Variations Juonik River (Rosenau's #4)
3. Map Reference ARCTIC T135/N292 RMK
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Neets'ii Gwich'in. Construction of this style of fence is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKenman in 1933 (see McKenman 1965).

Although no campsite was reported by Rosenau et al. (1975), it is likely that traditional campsite was located near the fence since meat and skins were processed following the caribou kills. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

It has been reported (Rosenau et al. 1975) that the fence belonged to the grandfather or great-grandfather of several residents of Arctic Village. This fence then reflects strong associations of some of the modern Neets'ii Gwich'in.

prepared by:
Philip Anderson
Teresa D. G. Simon
Dept. of Anthropology

PRELIMINARY INVENTORY

1. Site Number - ARV 18
2. a. Indian Name of Site Watsihilall
b. English Name of Site Caribou Fence
c. Variations Water Creek (Rosenau's #20)
3. Map Reference ARCTIC T115/N287 JMK
4. Land Status D-2

COMMENTS

This is one of the many caribou fences of the aboriginal Neets'ii Gwich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKenman in 1933 (see McKenman 1965).

Although no campsite was reported by Rosenau et al. (1975), it is likely that traditional campsite was located near the fence since meat and skins were processed following the caribou kills. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Philip Anderson
Teresa D. G. Simon
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 19
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Spring Creek (Kosaneau's #13)
3. Map Reference ARCTIC TILLS/R26R R26R
4. Land Status D-2

COMMENTS

This is one of the many caribou fences of the aboriginal Hets'e' all Ouch' in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

The remains of traditional camp have been observed to the north of the fence (Kosaneau et al. 1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth Anderson
National Data Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6T 0A8

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 20-1
2. a. Indian Name of Site _____
b. English Name of Site Cave Site
c. Variations _____
3. Map Reference ARCTIC TILLS/R26R border R26R/M26
4. Land Status D-2

COMMENTS

This site is significant in the oral traditions of the Hets'e' all Ouch' in. The story not only is true, but is morallistic in nature. It tells of two women who were left at the site. One left and the pregnant woman remained who had to survive by snaring animals. Since she very much needed sinew she looked around nearby camps. She found small pieces around the young women's camp but none around the old women's camp. Several informants observed at this point of the story that the old people saved every place of sinew, never wasting any in the event that an emergency might arise.

The story is also significant for what we can learn about teaching devices utilized by Hets'e' all Ouch' in to pass their culture on to the younger generations.

prepared by:

Elizabeth Anderson
National Data Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6T 0A8

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 21
2. a. Indian Name of Site Davdchaand'ah
- b. English Name of Site Caribou Fence
- c. Variations North Green Lake (Roanneau's Hill)
3. Map Reference ARCTIC TILES/RJ02 854
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Meete'elj Guich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McManan in 1933 (see McManan 1965).

A traditional abas (butcher house) was also located south of the fence (Roanneau et al. 1975). Such abas were unique to the Meete'elj Guich'in and have been well-documented by Roanneau et al. (1975) on the basis of observations and descriptions by Arctic Villagers people. Although no campsites were reported it is likely that further investigation may reveal such a camp since meat and skins were often processed following the caribou kills. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth A. Johnson
National Park Service
Dept. of the Interior

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 20-2
2. a. Indian Name of Site _____
- b. English Name of Site Shin Boat-Making Place
- c. Variations _____
3. Map Reference ARCTIC TILES/R268 854
4. Land Status D-2

COMMENTS

This site is a traditional late summer boat-making locale of the Meete'elj Guich'in. Here members of this Indian band would make skin boats and haul the same they caught to other settlements. The site reflects a significant activity in the annual cycle of the native culture.

prepared by:

Elizabeth A. Johnson
National Park Service
Dept. of the Interior
Fairbanks, Alaska

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 23
2. a. Indian Name of Site _____
b. English Name of Site Grave _____
c. Variations _____
3. Map Reference ARCTIC T148/R29E 82% _____
4. Land Status D-1 _____

COMMENTS

This is the grave of one of Rev. James Olibert's daughters.

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 22
2. a. Indian Name of Site _____
b. English Name of Site Grave _____
c. Variations _____
3. Map Reference ARCTIC T148/R29E 82% _____
4. Land Status D-1 _____

COMMENTS

This is the grave of the brother of Mr. Johnny Frank (now in his 90's)—one of the most knowledgeable people of the earlier culture of the Nete'ssi Ovich'ia.

prepared by:

Elizabeth Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARY 24
2. a. Indian Name of Site Taiyach
b. English Name of Site
c. Variations
3. Map Reference ARCTIC T145/R298 85x
4. Land Status D-1

COMMENTS

This was a late 19th century and early 20th century seasonal fishing settlement of the Meke'oili Ojich'in. It was one of the most important sites for temporary habitation during the annual migration of the people. The site is significant in its traditions today which reveal the importance of this location in the culture of the people. In addition, the site could also make a substantial archeological contribution to the study of the Meke'oili Ojich'in culture which has been ethnographically documented (Hudleigh-Went 1963, McKenna 1965).

prepared by:

Elizabeth Anderson
National Data Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARY 25-1
2. a. Indian Name of Site
b. English Name of Site Old John's Cabin and Grave
c. Variations
3. Map Reference ARCTIC T158/R312 85x
4. Land Status D-1

COMMENTS

This was an early 20th century house occupied by the renowned Meke'oili Ojich'in man, Old John. This house was important during the early 20th century as an Indian/Eskimo meeting place. Old John Lake also continues to hold considerable significance for the present residence of Arctic Village. Probably in much the same way as it did for their ancestors. In addition, to the association people have to the cabin, it is also likely to make a significant contribution to historic archeology in the North.

A grave was reported near the cabin.

prepared by:

Elizabeth Anderson
National Data Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 25-2
2. a. Indian Name of Site Van Choo
b. English Name of Site Old John Lake
c. Variations _____
3. Map Reference ARCTIC T168/R31E Western 4
4. Land Status D-1

COMMENTS

Old John Lake is one of the most significant areas in the region of the Kest'at Quich'in. It is a central location for caribou fishing and caribou hunting and people have made their camps there as far back in time as memory recalls. During an archeological investigation of the area in 1972 (McKenna and Hall 1973) some 44 prehistoric localities were discovered. At this time, the material recovered cannot be dated since there are few artifacts. The entire area, however, which the material can be dated, is considered to be of great importance. The entire area, however, continues to have much archeological potential and a more extensive survey would be worthwhile.

prepared by:

Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alberta
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 26
2. a. Indian Name of Site Klitslik'it
b. English Name of Site Beane Meat Cache
c. Variations _____
3. Map Reference ARCTIC T155/R31E NW
4. Land Status D-1

COMMENTS

This meat cache represents a unique structure utilized by the Kest'at Quich'in. This type of cache has been observed and described by Hading-West (1963) and Kosaneau (et al. 1973). This particular cache is made of stone rather than the logs that were usually used in its construction. It was constructed in the early 20th century by Mr. Johnny Frank (now in his 90's) to store 35 caribou which he had killed nearby.

prepared by:

Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alberta
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - WY 20

2. a. Indian Name of Site Tinikallb. English Name of Site Caribou Fencec. Variations Southwest Old John Mountain (Hosseman's 66)3. Map Reference ARCTIC TISS/B31E 8464. Land Status D-1

COMMENTS

At least two meat caches and four abaya (hutch houses) are associated with this fence. Both types of structures have been observed and described by Hosseman (et al., 1975). The fence is said to belong to a man Traktyon. Although no camp was located near the fence it is likely that pen was made there since this area was most popular for obtaining caribou and people usually processed some skins and meat following the caribou kill. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Charles Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99775

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 27

2. a. Indian Name of Site Detalidesslib. English Name of Site Caribou Fencec. Variations Old John Mountain Double Fence (Hosseman's 67)3. Map Reference ARCTIC TISS/B31E 8464. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal. Metelidessli. Construction of this style of fence is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are cultural to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

At least two caches were located near the fence (Hosseman et al., 1975). The type of construction of these caches, unique to the Kutchin people have been described by Radleigh West (1965) and Hosseman (et al., 1975). This particular fence is also more unique than the usual type of corral constructed in that it is composed of two double corral structures (see Hosseman et al., 1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated caches then, not only reveal distinct structural features, but could also contribute to the undocumented precontact and early contact history of the people.

prepared by:

Charles Anderson
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99775

1. Site Number - ARV 29

2. a. Indian Name of Site

b. English Name of Site Polo Cache

c. Variations

3. Map Reference ARCTIC T138/R30R border RED/WH

4. Land Status D-1

COMMENTS

This polo cache represents a unique structure constructed by the Meete'ell Ojich'in. This type of structure has been observed and described by Roseman et al. (1975). Such caches were used to store gear used in conjunction with getting caribou at the fence. A log meat cache was also located by Roseman near the polo cache. Both structures still known to Meete'ell Ojich'in today represent a significant aspect of their traditional culture as described by McKennan (1965).

prepared by:

Elizabeth Ambrose
Ph.D. and D.S. (Soc)
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99738

WAR 19/6

1. Site Number - ARV 30

2. a. Indian Name of Site Doydich'aa

b. English Name of Site Caribou Fence

c. Variations Redfish Lake (Roseman's #6)

3. Map Reference ARCTIC T135/R30R border RED/WH

4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Meete'ell Ojich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

A traditional meat cache is associated with this fence and represents a unique structure constructed by the Meete'ell Ojich'in. This structure has been observed and described by Roseman. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth Ambrose
Ph.D. and D.S. (Soc)
Dept. of Anthropology
University of Alaska

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 32
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Spoonfish Lake (Kosaneau's #27)
3. Map Reference ARCTIC T135/R32E SW4
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Hesté's all Ouch'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

This fence is said to have belonged to Old Robert (see photograph in McKennan 1965). It is likely that a traditional campsite was located near the fence since some meat and skins were processed following the caribou kills.

prepared by:

Elisabeth Andrew
Native's Past Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6G 2G4

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 31
2. a. Indian Name of Site _____
b. English Name of Site Grave
c. Variations _____
3. Map Reference ARCTIC T135/R30E RP4
4. Land Status D-1

COMMENTS

A native grave is located here.

prepared by:

Elisabeth Andrew
Native's Past Service
Dept. of Anthropology
University of Alberta
Edmonton, Alberta T6G 2G4

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 33
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Komoso River (Rosenau's #28)
3. Map Reference ARCTIC T14S/R32E SDA
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Heceta's/Ovich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKenna in 1933 (see McKenna 1965).

Three traditional style caches were also located near the site. Such caches have been well described and observed by Rosenau et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:
Elizabeth Andrew
National P.D. Service
Dept. of Agriculture

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 34
2. a. Indian Name of Site Nichol's David Vahual'
b. English Name of Site Caribou Fence
c. Variations David's Post (Rosenau's #29)
3. Map Reference ARCTIC T14S/R32E SDA
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Heceta's/Ovich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKenna in 1933 (see McKenna 1965).

This fence is said to have belonged to Nichol David (Old Solomon's father). Two traditional style caches were also located near the site. Such caches have been well described and observed by Rosenau et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:
Elizabeth Andrew
National P.D. Service
Dept. of Agriculture

PRELIMINARY INVENTORY

1. Site Number - AYV 35

2. a. Indian Name of Site Chasakallit
 b. English Name of Site Caribou Fence
 c. Variations Southeast Old John Lake (Rosenau's #9)

3. Map Reference ARCTIC T165/R31Z

4. Land Status Rational deficiency

COMMENTS

This is one of the many caribou fences of the aboriginal Met's'ali Ouch'in. Construction of this style of fence is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1975).

Two traditional log meat caches and at least two abaya (butcher houses) were located near the fence. These structures have been well described and observed by Rosenau et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth Andrew
 National Park Service
 Dept of the Interior
 University of Alaska
 Fairbanks, Alaska 99724

PRELIMINARY INVENTORY

1. Site Number - AYV 36

2. a. Indian Name of Site Yanawubike'
 b. English Name of Site Caribou Fence
 c. Variations Dhukde Ridge (Rosenau's #3)

3. Map Reference ARCTIC T135/R20Z 514

4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Met's'ali Ouch'in. Construction of this style of fence and the associated technique for setting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

This fence was reported to have been constructed by the late Rev. Albert Tritt and was thought to be that last one constructed in the Arctic Village area (Rosenau et al. 1975). Although no caribou was found near the fence it is likely that one exists since numerous native accounts report people spending one entire winter there in the late 19th century. The fence is also significant to many people and the Met's'ali Ouch'in culture because it was during a winter's stay at the fence that the people were introduced to Christianity. A French-Canadian man named "Andoo" probably of the Church of England was the layreader and/or interpreter. The history of the adoption of Christianity among these people plays a significant role in their lives and culture today.

prepared by:
 Elizabeth Andrew
 National Park Service
 Dept. of the Interior

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 38
2. a. Indian Name of Site _____
b. English Name of Site Cava Site
c. Variations _____
3. Map Reference ARCTIC T165/R25E SE4
4. Land Status D-1

COMMENTS

A cave site of undetermined age was reported at this location. It remains uncertain whether it is associated with human or animal occupation.

prepared by:

Elisabeth S. Sweeney
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99775

NAR 1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 37
2. a. Indian Name of Site Iryahitai' Chu'njik
b. English Name of Site Caribou Fence
c. Variations Ootetkai Greak (Roanau's #25)
3. Map Reference ARCTIC T155/R27E SE4
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal Neets'it' Gwich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elisabeth S. Sweeney
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99775

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 41-1
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations _____
3. Map Reference ARCTIC T135/R35E SEX _____
4. Land Status Arctic National Wildlife Range

COMMENTS

This is one of the many caribou fences of the aboriginal "Nets'ali" Gwich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

A native log mast cache has been observed at the fence (Romanow 1963, p. 44). Such structures have been well documented by Hilditch-Ward (1963) and Romanow et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:
Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 39
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Smoke Creek (Romanow's #26)
3. Map Reference ARCTIC T165/R22E SEX SDX
4. Land Status D-1

COMMENTS

This is one of the many caribou fences of the aboriginal "Nets'ali" Gwich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:
Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707
MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARY 42
2. a. Indian Name of Site _____
- b. English Name of Site Grave
- c. Variations _____
3. Map Reference ARCTIC T14S/R26E S24
4. Land Status D-1

COMMENTS

This is the grave of an old man who requested to be buried alive. The grave is apparently a cave which was blocked with stones and sod.

prepared by:

Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARY 41-2
2. a. Indian Name of Site Kueh
- b. English Name of Site Albert Trice's "Groundhouse"
- c. Variations _____
3. Map Reference ARCTIC T13S/R35E NW4
4. Land Status Utility Corridor

COMMENTS

Three old style Gwich'in houses, Kueh, were constructed at this site by the late Albert Trice in 1922. This was the last time that man constructed the aboriginal style house. This style of house construction consisted of using frozen sod and logs which according to one informant were sometimes as large as 20 feet square. This unique type of architecture has not been documented and archeological documentation as well as native oral accounts of the style construction and its significant contribution to our knowledge of Gwich'in houses.

prepared by:

Elizabeth Andrews
National Park Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99707

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 43
2. a. Indian Name of Site Dik'ii tsal
b. English Name of Site Caribou Fence
c. Variations Tikvitsal Mountain Fence (Kosaneau's #5)
3. Map Reference ARCTIC T135/R29E NEX
4. Land Status D-1

COMMENTS

This fence is not only unique in construction but has played a most significant role in 20th century Nante'ast Ojich'in culture. It is also considered by local residents to be perhaps the most important historic site in their area. The following description is taken from Kosaneau et al. (1975).

"The construction of this fence is unusual in that large logs were placed in a triangular manner that form a strong stockade-like wall that is, in places, as high as 2.5 m (8 ft.). According to McKenna (1965), this structure was said to have been the last constructed in the area (1914) and "... built... in connection with a nativistic [religiosity] movement that had gripped the community.... The fence was apparently intended to surround the mountain, an approximate distance of 8 km (5 mi.), and to be used as a permanent holding corral for caribou [in an attempt to domesticate them]."

prepared by:

Elizabeth Adams
Native Plant Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99724

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 44
2. a. Indian Name of Site _____
b. English Name of Site Grave
c. Variations _____
3. Map Reference ARCTIC T165/R22E 96%
4. Land Status D-1

COMMENTS

This is the grave of Old Maggie Gilbert's aunt.

prepared by:

Elizabeth Adams
Native Plant Service
Dept. of Anthropology
University of Alaska
Fairbanks, Alaska 99724

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - AVY 45

2. a. Indian Name of Site _____

b. English Name of Site Stone-lined Cache

c. Variations _____

3. Map Reference ARCTIC T14S/R27E SE4

4. Land Status D-1

COMMENTS

A traditional style meat cache was located at this site. Such structures were unique to the native people of the area. These caches have been well-described by Roseman et al. (1975) and they played a significant role in earlier native culture.

prepared by:

Elizabeth Auldrey
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - AVY 46

2. a. Indian Name of Site Shrijaa halif

b. English Name of Site "Grayling Point"

c. Variations _____

3. Map Reference ARCTIC T15S/R27E SE4

4. Land Status D-2

COMMENTS

This camp was significant in the annual movements of the Nasta'ali Owich'in and also served as a reliable source of food during starvation in native culture in order for human survival of the population. Many people today can recall the strong association their ancestors had toward the site.

prepared by:

Elizabeth Auldrey
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99701

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 47
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations _____
3. Map Reference TABLE MOUNTAIN T65/T472 MSK
4. Land Status Arctic National Wildlife Range

COMMENTS

This is one of the many caribou fences of the aboriginal Kest's'ijj Owich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth A. Jones
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99721

MAR 1976

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 48
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Old Crow River (Roseneau's #36)
3. Map Reference TABLE MOUNTAIN T105/T472 MSK
4. Land Status Arctic National Wildlife Refuge

COMMENTS

This is one of the many caribou fences of the aboriginal Kest's'ijj Owich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKennan in 1933 (see McKennan 1965).

One pole cache and a abye (butcher house) have been located near the fence (Roseneau et al. 1975). Such structures, significant in the taking of caribou, have been adequately described by Roseneau et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

prepared by:

Elizabeth A. Jones
National Park Service
Dept. of Agriculture
University of Alaska
Fairbanks, Alaska 99721

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 49
2. a. Indian Name of Site _____
b. English Name of Site Meat Caches
c. Variations _____
3. Map Reference Table Mountain T105/N47E (borders SMT/4 & SE 1/4)
4. Land Status Arctic National Wildlife Range

COMMENTS This site, consisting of a pole cache and shya (butcher-house) was identified (Rosneau et al. 1975) from an aerial survey and is reported to be within 2.3 miles of a caribou fence. (ARV 48). It is probably best considered as part of the same activity area as the fence for it was common to store the meat and equipment a short distance away from the fence.

One investigator indicated the area was also rich in archaeological sites (Rosneau, personal communication).

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 50
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Billwaddy Creek (Rosneau's #19)
3. Map Reference Table Mountain T145 N48E (SW4)
4. Land Status Withdrawal for Possible Inclusion in The Four National Systems (P-2)

COMMENTS This is one of the many caribou fences of the aboriginal Hest's all which in. Construction of this style of fence and the associated technique for setting caribou for survival is unique to these Native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKernan in 1933 (see McKernan 1965).

There is indication that the corral may overlay an older structure (Rosneau et al. 1975:81).

A meat cache and shya (butcher house) are present near the fence ... (implied) east and north of the main corral at Trelling. (Rosneau et al. 1975:80). Such structures, significant in the taking of caribou, have been adequately described by Rosneau et al. (1975).

According to Native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44) or about 1870. The antiquity of this site is suggested by the rebuilding of the fence in all likelihood before 1870. Johnny Frank, from Venetic indicated the fence was named after the individual who camped there. People went there when they were short of food, he also indicated there is a kwah (aboriginal ground house).

The fence and associated camp then not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 51
2. a. Indian Name of Site _____
b. English Name of Site 2 cabins
c. Variations _____
3. Map Reference Table Mountain T16S R43E (NE1/4)
4. Land Status Withdrawal for possible inclusion in the Four National Systems (D-2)

COMMENTS Two cabins were recorded as being present at this site (Rosneau, personal communication).

Approved by: _____
Date: _____
Comments: _____
Reviewed by: _____
Date: _____

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 52
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Marten Creek (Rosneau's #31)
3. Map Reference Table Mountain T15S R41E, SE4 T16S, R41E NE4 and T16S R42E, NW4
4. Land Status Withdrawal for possible inclusion in the Four National Systems (D-2)

COMMENTS This is one of the many caribou fences of the aboriginal Neets'itl which in construction of this style of fence and the associated technique for getting caribou for survival is unique to these Native people. This particular fence features "a wing fence that loops back on itself almost forming a second small corral." (Rosneau et al. 1975:92). Construction of these fences as well as the activities of the people who used them and lived near them are central to the Native culture. The role of caribou in their culture was well documented by Robert McKernan in 1933 (see McKernan 1965).

According to Native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence then, not only reveals distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

Approved by: _____
Date: _____
Comments: _____
Reviewed by: _____
Date: _____

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 54
2. a. Indian Name of Site _____
b. English Name of Site Eskimo Camp.
c. Variations "Where caribou come through"
3. Map Reference Table Mountain T16S R39E NW4
4. Land Status On borderline of Arctic National Wildlife Refuge & Withdrawal for Possible Inclusion in the Four National Systems (D-2)

COMMENTS Little is known about the Indian/Eskimo interface in Alaska. Information gathered from and about this Eskimo site will yield insight about that interface. The site is located just up stream from the confluence of the Sheenjek and Eskimo Creek and is reported to be an excellent place for caribou hunting. Fur-trapping during the years 1919-1930 must certainly have also played a part in the life of Eskimos there.

Ambrose Williams stated that the houses (7) were built in 1919; James Gilbert recalls that the Village was still occupied by Eskimos in 1930. A common route of travel for Eskimos from the Arctic Coast was to follow the Kongakut River up to the Sheenjek and then to its confluence with Eskimo Creek.

Eskimos from this Village traded at Sheenjek Village (see ARV 73), at Fort Yukon and in all likelihood with Indians at Old John Lake. Maggie Gilbert recalls that Albert Trill and Trimble Gilbert's grandfather made visits to the village to baptize Eskimos. Eskimos (some of whom probably were from this camp) were married and baptized at Sheenjek Village.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 53
2. a. Indian Name of Site _____
b. English Name of Site Bear Mountain
c. Variations _____
3. Map Reference Table Mountain T12S, R43E & T12S, R42E
4. Land Status Arctic National Wildlife Range.

COMMENTS This was a place where Old Crow people and Meets'ail met and stayed together. People from the coast may also have met Arctic Village people here. (There is some question as to whether this site is misplaced and may be the same as ARV 60).

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 55

2. a. Indian Name of Site _____

b. English Name of Site Caribou Fence

c. Variations Eskimo Creek (Rosneau's #30)

3. Map Reference Table Mountain T15SR39E (Border NE & NW/4S)

4. Land Status Arctic National Wildlife Refuge & Withdrawals for Possible

Inclusion in the Four National Systems (D-2)

COMMENTS This is one of the many caribou fences of the aboriginal Hechi'lii Owich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to the Hechi'lii people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well documented by Robert McKennan in 1933 (see McKennan 1965).

These structures have been adequately described by Rosneau et al. (1975). According to Native Accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. These fences reveal distinct structural features, and could contribute to an understanding of the precontact and early contact history of the people.

A camp site is reported a few miles NW of the fence on the Sheenjek River (Ambrose Williams was born there). This camp (Indian) was probably associated with the caribou fence. An Eskimo camp was located directly south of the caribou fence on Eskimo Creek but it is questionable whether this latter camp was occupied at the time the fences were used.

William A. Schaeffer
Arctic and Historic Preservation
Canadian Museum of Natural History
Ottawa, Ontario

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 56

2. a. Indian Name of Site _____

b. English Name of Site Caribou Fences

c. Variations Sheenjek #1, Sheenjek #2, Sheenjek #3, and Sheenjek #4.

(Rosneau #14, 15, 16, 17).

3. Map Reference Table Mountain T14SR39E NW1/4, T14S R3BE NE1/4, T13S

R3BE SE1/4 & SW1/4, T13SR37E Border of NE and SE 1/4S.

4. Land Status Arctic National Wildlife Refuge.

COMMENTS This site designation refers to 4 caribou fences (Rosneau's #14, 15, 16, and 17). #16 contains 3 meat caches and 2 shya butcher houses. #17 has one meat cache on the east side.

This is one of the many caribou fences of the aboriginal Hechi'lii Owich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well documented by Robert McKennan in 1933 (see McKennan 1965).

The presence of caches and shya (butcher houses) have been described by Rosneau et al. (1975). The association of 3 meat caches and 2 shya with fence #16 may be indicative of its importance in the past. According to Native Accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fences and associated camps then not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

William A. Schaeffer
Arctic and Historic Preservation
Canadian Museum of Natural History
Ottawa, Ontario

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 58
2. a. Indian Name of Site _____
b. English Name of Site Cave with Sticks in it
c. Variations _____
3. Map Reference Table Mountain T9S826E NW1/4
4. Land Status Arctic National Wildlife Refuge.

COMMENTS This site was reported I believe by Rosneau. To the best of my knowledge, no cultural material has been reported from the site, but a cave site could provide good conditions for preservation.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 57
2. a. Indian Name of Site _____
b. English Name of Site Grave Site
c. Variations _____
3. Map Reference Table Mountain T12S835E SW1/4
4. Land Status Arctic National Wildlife Refuge and Utility Corridor

COMMENTS This site consists of a grave of an Indian woman (individual's name not recorded). The death occurred in 1910 and the individual was identified by James Gilbert who was born at the place the day before the death occurred.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 59-1
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Kautuf Mountain (Rosneau's #18)
3. Map Reference Table Mountain T13SR39E NE4
4. Land Status Arctic National Wildlife Refuge

COMMENTS This is one of the many caribou fences of the aboriginal Neets'itl Gwich'in. One informant (Johnny Frank) indicated that Old Crow people also gathered here for caribou. There is also indirect evidence that Eskimo from their camp on Eskimo Creek (ARV 54) also used this site. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these Native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the Native Culture.

The role of caribou in their culture was well documented by Robert McKernan in 1933 (see McKernan 1965).

This particular fence has a collapsed sliva (burcher house) south of the lower corral. A toggle or drag was also found associated with a grave (Rosneau et al. 1975). According to the above informant, this fence was used in summertime. Such structures, significant in the taking of caribou have been adequately described by Rosneau et al (1975).

According to Native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 59-2
2. a. Indian Name of Site _____
b. English Name of Site Grave Site
c. Variations _____
3. Map Reference Coleen T26 NR24E NW1/4
4. Land Status Withdrawals for Classification and Public Interest (D-1)

COMMENTS This is a grave site located on the north bank of the Coleen River at its juncture with the Porcupine River.

Worksheet No. 1
Doyon, Ltd.
Historic and Cemetery Sites
Preparation of Inventory
1975-1976

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 61
2. a. Indian Name of Site _____
b. English Name of Site Prehistoric Site
c. Variations _____
3. Map Reference Coleen T36NR21E NW1/4 & SW1/4E, T36NR20E NE1/4 & SE1/4E.
4. Land Status Utility Corridor.

COMMENTS This site was reported by Walter Newman who indicated a series of prehistoric camps, some containing chert points. Investigations of this site could add valuable information on the prehistoric life ways in this area.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 60
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Dorothy Creek (Rosneau's #34)
3. Map Reference Coleen T34NR25E (near middle)
4. Land Status State Selections Pending

COMMENTS There is some confusion as to whether the site is located as indicated in the above description or at Bear Mountain (ARV 53). Two informants indicated that Old Crow and Neets'ali Gwich'in met there (Alice Peter and Johnny Frank). Construction of this style of fence and the associated technique for getting caribou for survival is unique to these Native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well documented by Robert McKenna in 1933 (see McKenna 1965).

This caribou fence has been described by Rosneau et al. (1975). At this site he indicates that a second fence may also be present. Further investigation may indicate differences in the age of the two fences.

According to Native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence then, not only reveals distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 62
2. a. Indian Name of Site _____
b. English Name of Site Stone Lined Pits, Possible Caribou Fence.
c. Variations Peter John Mountain (location questionable) ---
3. Map Reference Coleen T36NR19E NE1/4 & NW1/4, T37NR19E SE & SW1/4S.
4. Land Status Utility Corridor.

COMMENTS Johnny Frank said that these stone caches were his. They were undoubtedly used for storing meat. The site was also identified by Quimby and Snarsky. (Rosneau personal communication)
Remains of a caribou fence may also exist within the area recorded.

William B. Shaw for
Doyon Limited
Geological Survey of Canada
June 1974

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - 64-1
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence
c. Variations Strangle Woman Creek (Rosneau's #35)
3. Map Reference Coleen T36NR27E (near center)
4. Land Status Utility Corridor, Withdrawals for Possible Addition to National Wildlife Refuge System.

COMMENTS This is one of the many caribou fences of the aboriginal Neets'ali Gulch-in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these Native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well documented by Robert McKennan in 1933 (see McKennan 1965).

These structures have also been described by Rosneau et al. According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. The fence then, not only reveals distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

William B. Shaw for
Doyon Limited
Geological Survey of Canada
June 1974

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 65
2. a. Indian Name of Site _____
b. English Name of Site 4 Graves
c. Variations _____
3. Map Reference Chandalar T31NR1W NE1/4
4. Land Status State Selections Pending.

COMMENTS 4 graves indicated on top of this mountain.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 64-2
2. a. Indian Name of Site _____
b. English Name of Site Liza John's Grave
c. Variations There is some confusion over the location of this grave
& BEA19.
3. Map Reference Chandalar T31NR1W NW1/4
4. Land Status State Selections Pending.

COMMENTS This is Liza John's grave, wife of John Mesojit buried at the juncture of Brown Creek and the middle fork of the Chandalar.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 66
2. a. Indian Name of Site _____
b. English Name of Site Grave of Henry John's grandmother.
c. Variations _____
3. Map Reference Chandalar T3DN83E NE1/4 _____
4. Land Status State Selections Pending.

COMMENTS On the north bank of the Chekhechunnjik Creek is the grave site of Henry John's grandmother.

W. L. & S. L. Schaeffer
and others, et al. vs. the State of Alaska
Case No. 100-1000000-0000
Alaska Supreme Court
Held: 10/10/1980

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 67
2. a. Indian Name of Site _____
b. English Name of Site Ginnis Collins Cabin
c. Variations _____
3. Map Reference Chandalar T28N93E SW4 _____
4. Land Status State Selections Pending & Indian Reserve

COMMENTS On the East Fork of the Chandalar River (NW. bank) Ginnis Collins had a cabin.

W. L. & S. L. Schaeffer
and others, et al. vs. the State of Alaska
Case No. 100-1000000-0000
Alaska Supreme Court
Held: 10/10/1980

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 68
2. a. Indian Name of Site _____
b. English Name of Site Moose Snare
c. Variations _____
3. Map Reference Chandalar T26N02E NE4
4. Land Status Withdrawal for Possible Addition of National Wildlife Refuge System.

COMMENTS The site was described by Johnny Frank and is located below Chandalar Store at the point of a bluff on a tributary of the Chandalar River. Five years of babiche were used in the snare which was secured to a tree. Twelve strands of babiche were employed. This location is steep and thick with brush, making it ideal for channelling moose into an area where they can be snared. Snares used for this purpose have been described by Hickerman (1965:33).

This site is unique because of its ideal geographic location for snaring moose. The technique in taking moose is representative of a technology that predate white contact. Archaeological investigation of this site may yield additional information about the aboriginal and early historic periods.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 69 (see BEA 24)
2. a. Indian Name of Site _____
b. English Name of Site Chandalar Store
c. Variations _____
3. Map Reference Chandalar T27N01E SE1/4
4. Land Status State Selections Pending

COMMENTS Chandalar Store, located 20 miles below Caro on the north bank of the Chandalar River, was the farthest point upstream that the steamboat could travel on the Chandalar River and supplies bound for Caro, the Chandalar and Koyukuk gold fields were unloaded here and transported overland. The Chandalar Store was built by the Northern Commercial Company between 1900-1910 to supply miners. The settlement consisted of the store, a school, cafe and cabins. One informant (James Gilbert) indicated that there was an Eskimo settlement of semi-subterranean houses at nearby Sheklevun Lake.

Meets' all twich' in traveled from the present village of Venetie to Chandalar Store by way of a trail that connected the two places. They visited this place to trade-attend school, and celebrate holidays; some brought caribou meat which they sold to the store.

Holiday celebration such as New Years were celebrated by Indians, Eskimos, and whites with feasting, dancing - Eskimo, Indian and white dances, and "Football". "Football" involved running and kicking a stuffed hide ball.

Although Chandalar Store was built in response to the miners' need for supplies, the settlement plays a significant part in the oral history of Indians and Eskimos who went to school and visited there. For the people, Chandalar Store was one of the few places at the time of the goldrush where Indians, Eskimos, and whites met and lived together. Information gathered about this site and the activities of people there can contribute a great deal to an understanding of multi-ethnic relations during the early and middle historic periods.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 70
2. a. Indian Name of Site _____
b. English Name of Site Johnny Frank's Cabins
c. Variations _____
3. Map Reference Chandalar T31N R1E NE1/4
4. Land Status State Selections Pending.

COMMENTS Johnny Frank indicated that these were his cabins. The cabins are located between Ackerman Lake and Vuntitsieh Lake and are reached by a summer winter trail (ARV 71) which follows the Chekchunjik Creek. The area around Ackerman Lake may have archaeological potential.

Went on to identify
the following as being
the same as the
one at the site
of the site.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 72
2. a. Indian Name of Site _____
b. English Name of Site Caribou Fence and Camasite
c. Variations North Chotzathah(Rosneau & 10
3. Map Reference Chetlaton T35N R12E NW1/4
4. Land Status Withdrawn for Classification and Public Interest (D-1) and Former Indian Reserve

COMMENTS This is one of the many caribou fences of the aboriginal Neets'ali which in this fence was reported by Rosneau et al. (1975) and is unique in having no fences and being unusually sturdy. An "older" fence is located a few hundred meters to the north of the main structure. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these Native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the Native culture. The role of caribou in their culture was well documented by Robert McKennan in 1911 (see McKennan 1965).

At this site, Rosneau also identified an old campsite and bone midden at the outwash side along the corral. According to Native accounts, caribou fences were not used much after the introduction of the repeating rifle (.44 Henry) or about 1870. This fence appears to have been constructed after contact for Rosneau reports metal axe cut logs used in the construction of the fence.

The fence and associated camp then, not only reveal distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

Went on to identify
the following as being
the same as the
one at the site
of the site.

Site #: ARV 73

Although little if anything remains of the site (due to the flood) the location and the trails leading out from the place are vivid in the memories of Arctic Village people. To them, Sheenjek Village was a place where they spent trapping seasons; they recall the heyday of the fur trapping era, a time when that area was intensively trapped. The memories are of a way of life made personable by shared experiences with other Northerners, all Kutchin as well as Whites and Eskimos who also responded to the economic opportunities in that area.

To the anthropologist, the site represents the response of the Arctic Village people to different ecological setting perceived economic opportunities.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 73
2. a. Indian Name of Site
- b. English Name of Site Sheenjek Village
- c. Variations
3. Map Reference Christian T32N06R SE4
4. Land Status Withdrawals for Classification and Public Interest (D-1)

COMMENTS Sheenjek Village, located on the west bank of the Sheenjek River below White Snow Mountain, was chosen for settlement because it is a prime trapping area and availability of other natural resources in the large open area of fish and timber. The village was occupied in the 1930's and 1940's by Arctic Village people who built houses there and alternated residence between Arctic Village and Sheenjek Village, enjoying the natural resources of both regions but responding to the economic opportunities for trapping at Sheenjek Village. In addition, the location provides access by boat to Fort Yukon where fur was traded and supplies acquired. The village was occupied until the houses were flooded out in 1943. After the flood, it was decided not to rebuild but to locate permanently at Arctic Village and Venetie.

Trails connect Sheenjek Village with Vundik Lake (an important fishing lake), Old Rampart to the east, and Christian Village and Arctic Village to the west. These linked trails trappers and their extended families to other groups and provided access to different ecological zones and trading centers. The considerable number of trails leading to Sheenjek is testimony to the amount of activity at the place in the past.

Adults who now live at Arctic Village and Venetie recall the potlatches and celebrations that were held at holiday time at Sheenjek Village. On occasion Eskimos from Eskimo Creek visited Sheenjek Village and were married and baptized by the Reverend Albert Tritt, a famous Native minister and one of the founders of the village.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 74
2. a. Indian Name of Site _____
 b. English Name of Site John Laryel's Grave
 c. Variations _____

3. Map Reference Christian T33N R6G S61/4 & NE/14

4. Land Status Reserve Deficiency _____

COMMENTS This grave site is located on the north bank of the Loah Creek. The grave is that of John Laryel, Haggy Gilbert's grandfather. The grave was being washed out by the river and was moved up toward the hill by Chief Christian.

John Laryel is remembered as a large man. He died when he accidentally shot himself in the head. He was holding a muskie ladder by the handle and it went off, the shot hitting him in the head. He was killed unconscious and when he awoke he made it to his head but he died there. Possibly the remains of his camp are still in the area.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 75
2. a. Indian Name of Site _____
 b. English Name of Site Mosee Martin's Daughter's Grave
 c. Variations _____

3. Map Reference Christian T36N R4G N24 & S24

4. Land Status Public Interest (D-1)

COMMENTS This is the grave of Mosee Martin's daughter.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 76
2. a. Indian Name of Site _____
b. English Name of Site Grave Site _____
c. Variations _____
3. Map Reference Christian T35N R6E NW1/4 _____
4. Land Status Regional Deficiency Withdrawn _____

COMMENTS This is the grave of Mary Nitait Chia. (1)

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 77 (see also ARV 84)
2. a. Indian Name of Site _____
b. English Name of Site Chief Christian Camp _____
c. Variations Smoke Creek Camp. _____
3. Map Reference Christian T36N R32 NE1/4 _____
4. Land Status Withdrawn for Classification and Public Interest (D-1) _____

COMMENTS This camp described by McKernan at the forks of the Smoke Creek (1965:19) was occupied in summer and fall when members of Chief Christian's band gathered there to hunt caribou.

Chief Christian is an important figure in the history of Arctic village people and is remembered for his camp at this place, his dealings with the fur companies and with Eskimos on the coast. At the time McKernan's visit (1933) Christian was the most influential of the chiefs (1965:66). One of the most important functions of traditional leaders was organizing hunting activities and so his influence at the Smoke Creek camp was extensive.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 79
2. a. Indian Name of Site _____
 b. English Name of Site Big Christian John's Grave
 c. Variations _____
3. Map Reference Christian T34NR 7E borders NE 1/4 & NW 1/4
4. Land Status _____
 Regional Deficiency _____

COMMENTS This is the burial spot of Big Christian John's father, located on the west bank of East Fork of Chaudlar River.

William B. Schaeffer
 Canadian Museum of Natural History
 Ottawa, Ontario
 K1P 6X4

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 78
2. a. Indian Name of Site _____
 b. English Name of Site Caribou Fence
 c. Variations Wind River (Zanmu'a #23)
3. Map Reference T35NR7E NW1/4 & SW1/4
4. Land Status _____
 Regional Deficiency _____

COMMENTS This is one of the many caribou fences of the aboriginal Neets'iti Ojich'in. Construction of this style of fence and the associated technique for getting caribou for survival is unique to these native people. Construction of these fences as well as the activities of the people who used them and lived near them are central to the native culture. The role of caribou in their culture was well-documented by Robert McKinnon in 1933 (see McKinnon 1965).

There is some evidence that a store cache and campsite are located directly east of the fence. This caribou fence and other structures significant in the taking of caribou have been adequately described by Roaneau et al. (1975). According to native accounts, caribou fences were not used much after the introduction of the repeating rifle (66 Henry) or about 1870. The fence (and possible an associated camp) then, not only reveals distinct structural features, but also could contribute to the undocumented precontact and early contact history of the people.

William B. Schaeffer
 Canadian Museum of Natural History
 Ottawa, Ontario
 K1P 6X4

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 80
2. a. Indian Name of Site
- b. English Name of Site Chief Peter's Camp (1896) and Graveyard
- c. Variations
3. Map Reference CHRISTIAN T29N/R4E SW4
4. Land Status Withdrawals as D-1

COMMENTS

On the north bank of the East Fork of the Chandalar River, approximately one mile below Gold Camp, is Chief Peter's Camp and graveyard. Chief Peter was a Moosehide or Han Kutchin Indian. He and the other members of his band were going to make a camp at this place. In 1896 they had one cabin up and others were going to be built but they were stricken with the flu and many people died. Chief Peter died at Circle on his way back home.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 80
2. a. Indian Name of Site
- b. English Name of Site Johnny Frank's Camp
- c. Variations Gold Camp
3. Map Reference Christian T29 NR4E (border of NE & SE 1/4)
4. Land Status Withdrawals for Classification and Public Interest (D-1)

COMMENTS This camp was made by Johnny Frank in 1936 (although he undoubtedly used the area earlier). He and his wife have lived there ever since. The site is located on the west bank of the east fork of the Chandalar River. Johnny named the place "Gold Camp" because of the gold he found when he was leveling the ground for his cabin. His primary reason for moving there was to be closer to the store.

Many people from the middle Yukon know Gold Camp and speak affectionately of Johnny Frank and his activities there. Unlike many elderly people, Johnny and his wife have not moved into a permanent village-based life and Gold Camp serves as a reminder of the older pattern when everyone lived out on the land.

This place derives its primary significance from its association with Johnny Frank, an "old timer" who is well versed in the traditional life. He served as an informant for McKenna in 1933 (1965:122).

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 83
2. a. Indian Name of Site _____
 b. English Name of Site Prehistoric Site
 c. Variations "Hard Rock" or "Sharp Mountain"
3. Map Reference CHRISTIAN T11N/R5E SW 1/4
4. Land Status Federal D-1

COMMENTS

"Hard Rock" or "Sharp Mountain" was a quarry site for black rocks used to make projectile points and knives before the introduction of iron and steel. Sometimes people came from the Ft. Yukon area and as far away as Old Crow for this material.

Abraham Christian recalls that his father used the site and Johnny Frank related how the "black rock" (glass-like) was chipped with moose or caribou horn by direct pressure flaking.

The site abounds in animal life, particularly ground squirrel. It was also a popular place for gathering birch bark, the kind of bark that was rolled up to start camp fires.

The site was used as far back in time as the proto-historic period and is likely to yield valuable archaeological information on the prehistory of this region and interregional trade networks.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 84 (see also ARV 77)
2. a. Indian Name of Site _____
 b. English Name of Site Chief Christian's Camp
 c. Variations _____
3. Map Reference CHRISTIAN T35N/R7E NW 1/4
4. Land Status Regional deficiency

COMMENTS

This camp was used in the 1930's by Chief Christian and his band during the summer and fall for caribou hunting. It is unclear whether this is the same site as ARV 77, which is also listed as Chief Christian's camp. McKenna speaks of meeting Chief Christian and his band "at their caribou-hunting camps at the forks of Smoke Creek, Pl. 5" (McKenna 1965) (my emphasis). It is possible that Chief Christian had two camps and that this area contained two cabins. It was primarily a hunting camp.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 86
2. a. Indian Name of Site _____
b. English Name of Site Emma John's Grave
c. Variations _____
3. Map Reference Christian T36N72 (border NE 1/4 & SE 1/4).
4. Land Status Regional Deficiency

COMMENTS This site was indicated as the grave of Emma John. Emma John is Maggie Gilbert's aunt.

Doyon, Ltd.: Historic and Cemetery Sites

PRELIMINARY INVENTORY

1. Site Number - ARV 85
2. a. Indian Name of Site _____
b. English Name of Site Jim Christian's Cabin
c. Variations _____
3. Map Reference CHRISTIAN T36N/ R5E border NE 1/4 SE 1/4
4. Land Status Federal D-1

COMMENTS

Sitting in a valley on the west side of Buffalo Mountain and approximately half way between Smoke Creek and Wind River is Jim Christian's cabin. As can be seen by ARV 77 and ARV 84 this area was used by Chief Christian and his extended family. His son Jim Christian undoubtedly built the cabin for summer and fall hunting of caribou and may also have done some trapping from this place.

Doyle, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 88
2.
 - a. Indian Name of Site
 - b. English Name of Site Edward Trickett's Grava
 - c. Variations
3. Map Reference Christian TONOLING NE 1/4
4. Land Status Withdrawals for Classification and Public Interest (D-1)

COMMENTS Near the top of Burnt Mountain is the grave of Edward Tritt, father of Albert Tritt.

Doyon, Ltd.: Historic and Cemetery Sites

1. Site Number - ARV 90
2.
 - a. Indian Name of Site
 - b. English Name of Site, Johnny Frank Jr.'s Grave
 - c. Variations
3. Map Reference Christian T31N T14E W2 1/4
4. Land Status Withdrawal for classification and Public Interest (D-1)

COMMENTS This is the location of Johnny Frank Jr.'s grave.

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Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 91
2. a. Indian Name of Site Ko K'an Zhee
b. English Name of Site Albert Tritt's Store and Cabins
c. Variations Burnt Cabin
3. Map Reference CHRISTIAN T33N/R14E SE4
4. Land Status Federal D-1

COMMENTS

At this place Albert Tritt built a trapping cabin from burnt logs. (The construction was done at least 60-70 years ago since reference is made to the time when today's elders were just infants.) The site is particularly good for hunting and trapping and many of the present Arctic Village and Venetie people utilized the Sheenjek drainage for trapping in the past.

In later years, Albert Tritt had a store and sold goods there and the site was well-known by both Indians and Eskimos. Eskimos visited the store to trade and to purchase supplies. Elijah Henry, Johnny Frank, Little Henry and James Henry are Indians who stayed there, some putting up cabins. Isaac Tritt claims that after his father, Albert Tritt, could read the Bible, he wanted to be closer to his people, so he could help them. This was his motivation for moving to Arctic Village in 1914. I am led to believe (from ARV 89) that he probably continued to use the area at least until the 1920's and probably longer since Arctic Village people were trapping in the Sheenjek area as well as utilizing the Arctic Village area.

Doyon, Ltd.: Historic and Cemetery Sites
PRELIMINARY INVENTORY

1. Site Number - ARV 92
2. a. Indian Name of Site _____
b. English Name of Site Elijah Henry's Cabin
c. Variations _____
3. Map Reference Christian T33N R13E NE 1/4
4. Land Status Missgravia for classification and public interest (D-1)

COMMENTS This is the site of Elijah Henry's cabin. Elijah Henry was an "old timer" who is now recalled in the oral traditions of the Chaudiar people as well as by the ethnographer McKenna who found him to be a valuable informant on the traditional culture of the Neets' all Gulch in (1963:22). The cabin was probably used for trapping.

PRELIMINARY INVENTORY

2. a. Indian Name of Site

b. English Name of Site

C. Variations

3. Map Reference Christian

1. Land Status Withdrawals

COMMENTS This is a child's grave, located on the west bank of the Sheenjek River.

PRELIMINARY INVENTORY

2. a. Indian Name of Site

b. English Name of Site	Chief Christian's Cabin

C. Variations

Map Reference

Land Status W

Refuge System:

COMMENTS This cabin was initially documented by J.B. Mertle in 1928. (U.S.G.S. Bulletin No. 797C) and labelled as Chief Christian's.

Wm. C. Schenck
C. S. Schenck & Co.
C. S. Schenck & Co.
C. S. Schenck & Co.

MATERIAL ON NORTHWEST ALASKA



United States Department of the Interior

BUREAU OF MINES

2221 E. Northern Lights Blvd.
Suite 110
Anchorage, Alaska 99504

March 3, 1978

Senate Energy and Natural Resources Committee
3106 Dirksen Senate Office Building
Washington, D. C. 20510
ATTENTION: Mr. Steve Quarles

Dear Mr. Quarles:

The attached map and accompanying report indicate the distribution of mineral deposits and their relation to specific rock types within selected (d)(2) lands in the western Brooks Range, Alaska. The specific areas discussed are the proposed (1) Gates of the Arctic National Park, (2) Kobuk Valley National Monument, (3) Noatak National Arctic Range, (4) Selawik National Wildlife Refuge, and (5) the Cape Krusenstern National Monument.

This material was to be submitted to the workshop held in Anchorage in late February, 1978. These data attempt to represent most but by no means all data within this area where minerals exploration had started just prior to ANCSA and the withdrawal of these lands from mineral entry.

Sincerely,

Uldis Jansons
Geologist

UJ/pms

Summary of Partial Mineral Resource Data
on The Selected 17(d)(2) Western Brooks Range Land
Withdrawal Areas of the Alaska Native Claims Settlement
Act

Prepared by
Uldis Jansons/Thomas Mowatt
U. S. Bureau of Mines
Alaska Field Operations Center
Anchorage, Alaska

Submitted to
Senate Energy and Natural Resources Committee

February 21, 22
Anchorage, Alaska

Summary of Partial Mineral Resource Data
on The Selected 17(d)(2) Western Brooks Range Land
Withdrawal Areas of the Alaska Native Claims Settlement
Act

Modern minerals exploration has been undertaken in detail only in a few local areas within the (d)(2) lands in the western Brooks Range, Alaska. Up to 1960 or so essentially the entire exploration effort in northern Alaska appears to have been for gold, both placer and lode, and only few site specific investigations for base metals are known to have been conducted. The principal base metal effort was at the Bornite copper prospect, between 1906 and 1910.

The regional reconnaissance in the 1960's led to the discovery of the known base metal deposits and the identification of a major regional zinc-copper trend in a schist rock unit. In addition to the company effort in the early 1960's, an exploration syndicate investigated the western part of the central Brooks Range in 1969. No other regional exploration was undertaken on these lands prior to their withdrawal from mineral entry to private exploration groups in 1971 under section 17(d)(2) of the Alaska Native Claims Settlement Act (ANCSA), Public Law 92-203.

The regional geology of the Brooks Range is only superficially known. Mapping on a quadrangle by quadrangle basis was initiated only recently. The geologic relationships relevant to mineral resources within the withdrawn areas therefore are not well known.

In spite of the lack of detailed geology, prospecting, and minerals exploration throughout this vast land area, some very general relationships of the geology and commodity types can be discerned. The major rock units and trends persist regionally across the Brooks Range. By plotting most of the known mineralized areas and zones of anomalous geochemistry it becomes apparent that broad generalized associations of mineralization with rock units can be identified. These broad geologic trends, and some of the known mineral localities as well as some major geochemical anomalies are related to land withdrawals on the attached map. The land withdrawal boundaries as shown on this map are those of the original proposals for (d)(2) lands by Secretary of the Interior Morton because the Bureau of Mines studies were undertaken prior to H. R. 39 or the Carter administrations proposals. The Carter administration's proposed boundaries are also shown to reflect their areas of interest.

Details on some of the mineral occurrences such as its common name, location, and some notes on each located site are appended to this report.

An area by area discussion will be made here to indicate the rock units and types of related mineralization that are known in each of the withdrawals.

Gates of the Arctic National Park

The seven broad geologic trends (or mineralization related to host rocks) that strike across this withdrawal include: (1) schist belt rocks (2) granites (3) copper in clastic host rocks (4) placer gold (5) phosphate, oil shale, coal and potential base metals in Mississippian and younger clastics and carbonates (6) base metals in Devonian clastics and carbonates, (7) mafic/ultramafic rocks.

Within the Gates of the Arctic there are at least 51 areas of known mineralized rock or anomalous geochemistry.

(1) Schist Belt Rocks - These are confined to the southern part of this area. They are major units which contain large high-grade zinc, copper, lead, silver and gold mineral deposits in the Ambler District. Geological mapping and geophysical evidence shows that these units strike across the withdrawal in the area of Walker Lake. Here geochemical data suggest that these rocks may also contain mineralization.

(2) Granites- Five areas of major granitic intrusives are exposed. Some samples from the granites themselves, as well as parts of contact zones between the granites and intruded rocks, are mineralized. Elements of interest that have been found with these include tungsten, tin, zinc, lead, silver, copper, molybdenum, uranium, and fluorine.

(3) Copper in Clastics- Minor amounts of copper mineralization are found in phyllites in a 35 mile long trend from Pingaluk Creek to Lucky Six Creek. The data on hand suggest a potential regional trend which remains to be elucidated.

(4) Placer Gold- Placer gold is found in creeks which cut the above mentioned 35 mile long copper trend from Pingaluk Creek to Lucky Six Creek.

(5) Carbonate and Shale Hosted Base Metals - Samples of Devonian shales frequently contain geochemically very high amounts (several tenths of a per cent) of zinc. Regional exploration of a similar trend in the Yukon Territory/Northwest Territory border area in Canada led to the discovery of a major (world-scale significance) zinc/lead deposit in the early 1970's. Devonian rocks at Bornite, Alaska, host significant copper deposits.

(6) Coal, Oil Shale, Phosphate- Rocks containing these commodities strike along and are present within the entire length of the north slope of the Brooks Range. Phosphate and coal are known to be present in the area of concern. The oil shale in this region is normally spatially closely related to the phosphates and most likely also would be found within the study area if searched for.

(7) Base Metal Sulfides-Silver in Sedimentary-Volcanogenic Environments - Deposits of this type were identified on lands both east and west of withdrawn lands. Because the geology is continuous across (d)(2) lands the likelihood of finding these on (d)(2) lands appears good.

Noatak National Arctic Range

At least five geologic associations and mineralization can be identified on this land. At least thirty mineral bearing zones are known within this area. The geologic trends and the related mineralization include (1) Devonian and related carbonates and clastics, (2) mafic and ultramafic rocks (3) placer gold and tin, and (4) Maiyumerak volcanics (5) granitic intrusives.

(1) Devonian and Related Carbonates and Clastic Rocks- The known lead, zinc, and copper mineralization is reportedly mainly vein type in sedimentary units. These mineralized areas are found clustered in three zones within this withdrawal. These are (1) the Agashashok River headwater area, (2) the Kavachurak-Ningyoyak Creek areas, and (3) the Omar River area where the major known deposits occur-the copper at the Omar prospect and the barite, lead, zinc, fluorite mineralization at the Frost prospect located about six miles to the east of the Omar. Diamond drilling by a company at the Omar intercepted sections of high grade copper mineralization. The Frost prospect has not been examined in such detail and its size and grade is still to be evaluated. A copper prospect likened to those of Bornite and Omar has been noted south of the drainage of the south fork of the Agashshok River, but nothing further is known about mineralization at this location.

(2) Mafic and Ultramafic intrusives- These are located at the Avan River, Misheguk Mountain, Asik Mountain, and Siniktanneyak

Mountain and are known to contain chromite in variable amounts. Placer deposits in the Avan River are known to contain minor platinum suggesting that additional amounts may be present in the surrounding source rocks. There is no readily available public knowledge that any of these intrusives has been evaluated systematically for economic concentrations of any elements (Cr, Pt, Ni, Co, Cu) known to occur elsewhere with these types of rock units.

(3) Placer Gold - Gold has been mined in the Klery Creek and Timber Creek drainages to various extents up to the present time. To date only the placer gravels have been mined, and the bench gravels remain untested.

Placer tin has been reported in the Eli River at the western edge of the withdrawn lands. The source of this tin is not known, nor has any attempt been made to evaluate the tin content in the Eli River placer.

(4) Maiyumerak Volcanics - The Maiyumerak Mountains appear to be an assemblage of predominantly volcanic rocks, with streams draining this area containing anomalous amounts of chromium and copper. There has been no systematic effort to evaluate the economic potential of this assemblage.

(5) Granitic Intrusives - A granitic intrusive and its contact environments, outcropping near the headwaters of Kaluich Creek are known to contain widespread anomalous concentrations of lead and zinc, while fluorite, tin, and uranium have also been reported to be present. A systematic detailed evaluation has not been made of this area to ascertain its mineral potential.

(6) Carbonate and Clastic Rocks - Rocks of Mississippian to Triassic age are known to contain an extensive zone of lead, zinc, silver and barite mineralization on (d)(2) lands west of the Kelly River. These have been known to industry since at least 1965 but the data, held by a copper-oriented company, were not of interest for further follow-up by them at the time. The area was sampled in 1968 by the U. S. Geological Survey and the presence of anomalous concentrations of various elements was made public in 1970. Site specific work for the Bureau of Mines in 1975 revealed the presence of outcropping massive and disseminated, high to medium grades of lead and zinc sulfides and barite. This is the "Red Dog" locality.

Since 1975, industry prospecting to the west of the Red Dog site has revealed other zones of similar high grade mineralization on (d)(1) lands. While following this trend to the east, high grade zinc, lead, silver mineralization was identified in the Drenchwater Creek area. This location is in the National Petroleum Reserve in Alaska, 120 miles northeast of Red Dog. In 1977, regional geochemical surveys indicated anomalies which may reflect other zones similar to Red Dog and Drenchwater, hence this trend appears to warrant further exploration. The geologic relationships suggest continuity throughout the region and thus the possibility for the presence of other similar deposits.

Kobuk Valley National Monument

North of the Kobuk River are three main rock units worthy of further investigation with the potential for finding extensive mineralization, and a fourth zone which may contain coal. The main geologic associations for prospecting are (1) schist belt rocks, (2) carbonate and clastic rocks (3) placer gold potential and (4) coal in younger sediments along the Kobuk River:

(1) Schist Belt Rocks - These represent the prime exploration target for zinc, copper, lead, silver, and gold. These rocks are strike extensions to the west from the Ambler District. Geochemical data here show that sulfide deposits may be present.

(2) Carbonate and Clastic Rocks - In the northern portion of this withdrawal these rock types contain four known zones of copper occurrences and one lead-zinc occurrence.

(3) Placer Gold - In the past, an effort was made to evaluate the potential for placer gold along the headwaters of the Salmon River; other streams reported to contain placer gold in this withdrawal include the Kobuk River. Nothing is known publicly about the actual values of gold along these streams.

(4) Coal - Coal is known in outcrop in several sites in the Kobuk River Valley. It is believed to have potential for local use.

Selawik National Wildlife Refuge

The commonly available information source shows no claims or mineral occurrences within the area withdrawn for the Selawik National Wildlife Range as outlined in ANCSA. This is due at least in large measure to lack of surface rock exposures within the area.

Recent geological and geophysical work shows that the area is probably underlain in part by acid intrusive rocks. Such rocks in nearby lands to the southwest are known to be uraniferous. This suggests the possibility for uranium in the granitic rocks underlying the proposed refuge, and also presents the possibility of sedimentary uranium deposits, entailing a uranium source in the granites, with leaching of eroded granitic materials, and reconcentration in sedimentary materials.

The Bureau of Mines, in a joint program with the Los Alamos Scientific Laboratory, is analysing sediment samples from this area to determine if any indications of large deposits other than uranium are present in this area. These samples also are being analysed for their uranium content under a contract between the Department of Energy and Los Alamos Scientific Laboratory.

Cape Krusenstern National Monument

Rocks within the proposed Mounument have a potential for containing base metal deposits of the Red Dog type, as well as chromium and other elements commonly found in ultramafic rocks. To date only one deposit of lead-zinc-silver mineralization is known, at the headwaters of Rabbit Creek. Mafic/ultramafic rocks containing chromite and sulfide mineralization occur as float in Rabbit Creek. Placer claims have been staked (1968) at Nauyoaruk, reportedly for placer gold and tin. Other deposits, whose location have been given vaguely by prospectors, include a lead high grade silver ledge, placer (beach?) gold, and a lead-zinc occurrence.

Regional geological mapping suggests that the geologic relationships may be continuous between the Red Dog prospect and Cape Krusenstern.

Regional geochemical work (1977) has outlined areas worthy for follow-up field investigation for base metals as well as chromium and nickel.

APPENDIX

Partial List of Mineral Occurrences
and Selected Geochemically Anomalous
Zones in the Western Brooks Range

<u>Map #</u>	<u>Name</u>	<u>Location</u>	<u>Notes</u>
1	Red Dog	T 31N R 18W	Zinc, lead, silver, barite extensive mineralization over large area
2-5	Color Anomalies	T 31N R 19W	Geologic setting similar to Red Dog, high grade zinc, lead at one site drilled in 1977
6	Maiyumerak Mtns.	Tps 27, 28N R 15, 16W	Volcanic, ultramafic, mafic complex reported copper mineralization, anomalous chrome geochemistry
7	Sour's Chrome	T 24N R 17W	Mafic/ultramafic rocks identified bands of chromite bearing rocks
8	Eli River Tin		Placer tin confirmed in 1940's
9	Lean Creek		Lode and placer gold reported in literature
10	Avan	T 31, 32, 33, 34N R 13, 14, 15W	Mafic, ultramafic rocks, chromite identified platinum found in placer
11	Kugururok	T 30N R 14W	High grade boulder of chromite found in river gravels
12	Misheguk Mountain	T 33N R 10, 11W	Ultramafic pluton, reported copper, asbestos, chromite mineralization
13	Amaktukvik Pass	T 33N R 7W	One claim staked; commodity unknown
14	Loesche	T 24N R 14W	Copper in carbonates, possibly similar to Bornite

15	Agashashok River	T 26N R 12W	Copper, 18 claims
16	Agashashok River	T 26N R 12W	Copper with vein quartz to 1% Cu
17	Agashashok River	T 26N R 12W	Iron oxide stained zone, no mineralization noted in place
18	Agashashok River	T 26N R 12W	Iron oxide zone, no mineralization noted in place
19	Agashashok River Zinc	T 25N R 14W	100'+ thick section of zinc bearing pyritiferous schists
20	Nakolikurok Creek	T 26N R 8W	Copper in quartz vein in greenstone sill
21	Omar	T 24N R 10W	High grade copper sulfides in large fracture zones in carbonate rocks
22	Frost	T 24N R 9W	Extensive barite mineralization with zinc, lead, copper, and fluorite
23	Klery Creek	T 19-24N R 7-9W	Old placer gold district, gold still pannable in areas of previous placering
24	Timber Creek	T 24, 25N R 7-9W	Old placer district
25	Chevron	T 29N R 5W	Copper in quartz vein system, grades 0.02 oz. Au, 2.08% Cu over 4.3 feet or 0.5% over 10 feet
26	Hub	T 27N R 4W	Copper bearing quartz-calcite vein
27	Temby	T 25N R 4W	Copper bearing quartz vein. 1.5% Cu reported
28	Tundra	T 25N R 4, 5W	Reported claims nature of mineralization not known

29	Salmon River	T 26, 27, 28N R 5W	Placer gold
30	Salmon River	T 26N R 5W	Copper bearing quartz veins
31	Copper Creek (Cu)	T 27N R 5W	Copper bearing quartz veins
32	Copper Creek (Pb-Zn)	T 27N R 4, 5W	Lead, zinc in quartz veins
33	Lena Creek	T 29N R 8W (?)	Barite reported in stream float, source unknown
34	Tutuksuk River	T 23N R 4W	Lead reported in slate
35	Kallarichuk River	T 20, 21N R 5, 6W (?)	Reported placer gold
36	Eskimo Venture	T 34, 35N R 1, 2, 3E	Chromite in ultramafic rocks
37	Kingsavik Mtns	T 32N R 5, 6W	Reported gold
38	Malfiatti	T 25N R 1W	Reported copper mineralization in limestone-schists(?)
39	Atongarak Creek	T 29, 30N R 6, 7E	Placer gold reported
40	Hunt River	T 20N R 1W	One placer claim on Kobuk River
41	Aniuk River	T 31N R 7E	Reported placer gold
42	Aniuk River	T 31N R 7, 8E	Reported oil shale
43	Redstone River	Vague location	Reported placer gold
44	Kaluich	T 25N R 6E	Lead, zinc, copper over extensive area, also fluorite and minor uranium with granitic intrusive

45	Otter Bar	T 29N R 9E	Copper in sedimentary rocks
46	Imelyak River	T 25N R 8E	Reported gold mineralization and claims
47	Kav	T 28N R 9E	Copper, silver, antimony mineralization in quartz-calcite filled veinlets over extensive area
48	Tunukuchiak Creek	T 27, 28N R 10E	Reported placer gold similar to Midas Creek
49	Douglas Creek	T 29, 30N R 10, 11E	Geology similar to Midas Creek
50	Ningyoyak Creek	T 29N R 11E	Copper mineralization in quartz calcite vein
51	Midas Creek	T 28, 29N R 12E	Placer gold deposit
52	Shishakshinovik Pass	T 23, 24N R 11, 12E	Lead, zinc, silver, molybdenum, beryllium, tin, uranium in contact zone and float rock
53	Gull Pass	T 25N R 18E	0.32 oz. gold reported
54	Kutariak Creek	T 23, 24N R 12, 13E	Geochemically anomalous zone reported, mineralization not located
55	Nigikpalvguruvrak	T 27N R 13E	Active placer gold mine
56	Igning River	T 24, 25, 26N R 13W	Geochemically anomalous zones for zinc and copper
57	Ladanan Creek	T 26N R 20E	Copper reported
58	Iyahuna Creek	T 24, 25N R 15, 16E	Reported geochemically anomalous zone for lead and zinc

59	Angunelechak Pass	T 26N R 16E	Reported silver mineralization; also geochemically anomalous lead and zinc
60	Killik River	T 29N R 17E	Reported copper and antimony
61	Twelvemile Creek	T 25, 26N R 17E	Geochemically anomalous zone for lead and zinc
62	Tupik Creek	T 24, 25N R 17E	Granite contact zone geochemically anomalous for lead, zinc, copper, silver
63	Angiak Pass	T 24N R 17E	Granite, granite contact zone, geochemically anomalous in lead and copper
64	Glacier Creek	T 24N R 17, 18E	Granite, granite contact zone geochemically anomalous in lead, zinc, copper, silver
65	Mount Papiok	T 25N R 17E	Geochemically highly anomalous for lead, zinc, silver
66	Lucky Six Creek	T 25, 26N R 17, 18E	Quartz veins containing copper, antimony, gold; placer gold
67	Walker Lake West	T 20N R 20E	Schist belt rocks containing anomalous copper and 0.1 oz. gold
68	Walker Lake West	T 20N R 20E	Schist belt rocks high in geochemical lead values
69	Walker Lake East	T 21N R 21E	Schist belt rocks with geochemically high zinc values
70	Arrigetch Peaks	T 23, 24N R 21, 22E	Tactite zone to 450 feet long containing anomalous copper, zinc, tungsten

71	Helmejack Creek	T 19N R 24E(?)	Placer gold reported
72	Malamute	T 19N R 25E(?)	Placer gold reported
73	Alatna South	T 20N R 25E(?)	Placer gold reported
74	Quartz Hill		Placer gold, copper
75	Igikpak	T 23N R 17E	Reported placer gold in small drainages
76	Walker Lake South	T 20N R 21E	Placer gold on lake shore reported
77	Pingaluk River	T 24, 27N R 23, 24E	Placer gold along 8 mile length of river reported
78	Alatna North	T 24, 25N R 20, 22E	Placer gold along 10 mile drainage
79	Lake Selby	T 17N R 14E	Copper bearing quartz vein in conglomerate
80	Angeta	T 17N R 15E	Gold
81	Sheep Creek	T 32N R 20W	Fault controlled copper mineralization in carbonates
82	Tobin	T 33N R 18W	Pyritiferous phyllite float with reported high zinc geochemical
83	KinnorutIn	T 36N R 13W	Volcanics with reported high geo-chemical values
84	St. Patricks Creek	T 35N R 13W	High copper in volcanics
85	Rabbit Creek	T 26N R 21W	Zinc, lead, silver reported

86	Nauyoaruk	T 22N R 19, 20W	Placer gold, tin claims
87	Shiliak Creek	T 21N R 14, 15W	Cupriferous pyritiferous schists
88	Mt Kaksurok	T 21N R 21W	Ultramafics with chromite and nickel geochemistry
89	Redstone Pluton	T 24N R 8E	Iron and lead in granite contact zone
90	Ambler River	T 25N R 9, 10E	Copper mineral locality
91	Ambler River	T 25N R 10E	Copper mineral locality
92	Igning River	T 24, 25N R 13, 14E	Magnetite occurrence
93	East Oyukak Mtn.	T 25N R 16E	Copper mineralization and anomaly
94	East Oyukak Mtn.	T 25N R 16E	Iron in granite contact zone
95	Portage Creek	T 26N R 16E	Copper, silver mineralization
96	Reed River	T 22N R 17E	Pyrite in skarn zone
97	South Mt. Chitiok	T 23N R 15E	Chalcocite reported
98	Pass Hematite	T 23N R 16E	Hematite in granite contact zone
99	Divide Copper	T 25N R 18E	Copper iron mineralization
100	Awlinyak Creek	T 23, 24N R 20E	Lead copper occurrence

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11-20 11-21
11-21

STATEMENT BY ROY C. McMICHAEL
TO THE
SENATE COMMITTEE ON ENERGY
AND NATURAL RESOURCES

February 20, 1978
Anchorage, Alaska

Gentlemen:

There are large areas of the proposed Bering Land Bridge National Preserve which are very suitable contributions to the National Preserve. These areas include waterfowl breeding areas around Shishmaref Village and scenic lava fields in the center of the Peninsula. Other areas, however, contain significant mineral potential that should be further investigated. We feel that the following three areas should be excluded from the Preserve.

The Hannum Creek property, located 25 miles southwest of the Village of Deering, contains massive lead-zinc mineralization as indicated by surface and subsurface work. Soil and rock chip samples from the Hannum Creek area assay as high as 3.0% lead, 1.0% zinc and 2.75 oz. of silver per ton. Subsequent diamond drilling has revealed significant sulfide intercepts, the most noteworthy being a 13 foot intersection of 3.4% lead

and a 3 foot intersection of 3.4% lead and 1.24% zinc. The Hannum area, which extends onto the presently withdrawn lands, holds a good potential for a mineral deposit. The following townships and ranges should be excluded from any withdrawal to permit further exploration of the area:

T 1-5 N, R 19 and 21 W, Kateel River Meridian
T 4-8 N, R 22 and 23 W, Kateel River Meridian

The Hannum deposit is at the northwestern end of a chain of lead and silver deposits known as the Kugruk River Lead Belt. The belt is 55 miles long; it includes the Hannum, Old Glory Creek, and Dry Creek prospects and two inactive mines, Independence and Omilak. The geology and style of mineralization at all these deposits is similar. The Kugruk River area may thus be an important mining district. At least three mining companies, including Cominco American Incorporated, actively explored the Belt in 1977. In addition, several individuals are conducting placer gold mining near Utica village. At Independence Creek, another major mining company has considerable land holdings over a large massive magnetite deposit. They have completed 3 short diamond drill holes with intersections of massive magnetite with copper values. This prospect trends onto presently withdrawn land of the Bering Land Bridge National Preserve and townships along this trend should be opened for multiple use so exploration can continue on the entire area.

The Serpentine area, in the southwest portion of the proposed national preserve, contains significant showings of tin. Because of the strategic importance of tin to our economy, Townships 4 and 5 North, Ranges 27, 28 and 29 West, Kateel River Meridian, should not be included in the Bering Land Bridge National Preserve. These six townships should remain open to multiple use and mineral exploration.

The eastern Bendeleben Mountains, Townships 3 and 4 South, Ranges 26, 27 and 28 West, contain lead, zinc and copper potential that is now known only from scattered stream sediment samples. More work should be done in these 6 townships before the door to mineral development is closed. This would not be through a preserve classification but to multiple use.

D-2 mineral assessments performed by government agencies in this area have, in our opinion, been limited. The Seward Peninsula, including its proposed d-2 lands, has significant mineral potential. That this potential has not been fully realized to date is due to insufficient evaluation, rather than a lack of orebodies. Large annual expenditures by individuals and mining companies are a unique statement of faith in Alaska's mineral potential. If there are no minerals, why is the mining community fighting for a chance to explore? If there are no minerals, there will definitely be no mining, but if orebodies do exist, can our harassed nation afford to ignore them?

Roy C. McMichael, Supervisory Geologist
Cominco American Incorporated
E. 15120 Euclid
Spokane, WA 99216

Brooks Range Scenic Lakes

Prepared by:
Wilbur Mills
Alaska Coalition

State Selected	Native Selected	D-2	Native D-2 OVERLAP	Arctic Wild- life Range	Pipeline Corridor
Old John	Elusive	Porcupine	Kurupa	Schrader	Galbraith
Ackerman	Shainin	Itkillik		Peters	
Squaw	Chandler	Walker			
Chandalar	Twin	Nutuvukti			
Wild	Big	Selby			
Iniakuk	Kolliosak	Takahula			
Minakokosa		Amitchiak			
Total - 7	Total - 6	Total - 7	Total - 1	Total - 2	Total - 1

Notes: Of the State Selected lakes three (Wild, Iniakuk and Minakokosa) have been proposed by the Alaska Coalition for inclusion in the Gates of the Arctic National Park.

Under the present land status, Itkillik could be the only North Slope lake included in the Gates of the Arctic Park. The Alaska Coalition strongly favors inclusion of Kurupa Lakes in the park. While Itkillik Lake is very desirable for inclusion in the park, it does not rank with the Kurupa Lakes in scenic quality.

[The following material on forestry potential in interior Alaska was presented for the record by Joe Zylinski of the Forest Service.]

FORESTRY POTENTIAL IN INTERIOR ALASKA

**Report to the Sponsors and
Cooperators of the Symposium on
North American Forest Lands**

by

Peder Braathe, Hilmar Holmen and Aarne Nyyssonen

August 1977

UNIVERSITY OF HELSINKI

Department of Forest Mensuration and Management
Unioninkatu 40 B
00170 Helsinki 17
Finland

August 26, 1977

Dr. James V. Drew
Dean and Director
School of Agriculture & Land Resources Mgt.
University of Alaska
Fairbanks, Alaska 99701

Dear Dr. Drew:

Dr. Peder Braathe, Dr. Hilmar Holmen and I deeply appreciate the opportunity to participate in the Symposium on North American Forest Lands at Latitudes North of 60°. We especially thank the sponsors and cooperators of the Symposium, the University of Alaska, Alaska Humanities Forum, U.S. Forest Service, Bureau of Land Management, Alaska Federation of Natives, Society of American Foresters and the State of Alaska.

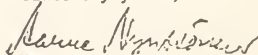
As part of our participation, we have prepared the enclosed report on the Forestry Potential in Interior Alaska. We are pleased to present this report to you and hope that you might forward copies to the other sponsors and cooperators.

This report indicates that the Scandinavian study group became convinced about the existence of valuable forest resources in Interior Alaska, suitable for multiple use forestry on a sustained yield basis. With multiple use as a guiding principal the total environmental aspect, including wildlife, recreation and wilderness can be considered.

Our team has the feeling that the full potential of Interior Alaska's forested lands have been largely underestimated so far. Assuming a reasonably intensive management, yields of forest products and improved wildlife habitat could be built up substantially.

In order to be able to utilize available possibilities, intensive research is needed. The report gives some indications about the orientation of the future research and pays attention to the importance of fire-fighting measures and of all state and private forestry activities. On the other hand, the team was concerned to note that in a couple of large cutting areas visited there seemed to be little or no consideration of future forest regeneration. This may be a matter in need of urgent attention and action in order to avoid the bad reputation of "timber mining".

Sincerely yours,


Aarne Nyyssonen

1. Introduction

The purpose of this report is to provide the State of Alaska and the U.S. Forest Service with an analysis of the Interior Alaska forest lands as compared with Fennoscandia (i.e. Finland, Norway, and Sweden). Although the emphasis here is in various problems of productivity, utility and management concerning present and future demands or forest commodities, attention is also given to the total environmental aspects of these northern lands, which of course includes wildlife and recreation.

The appraisal is based, in the first place, on a visit the study team made to Alaska from July 10 to 24, 1977. After briefings at the offices of the Forest Service, Federal-State Land Use Planning Commission and Bureau of Land Management (BLM) in Anchorage, additional meetings and tours had been arranged to the State Forester's office at Anchorage and to many institutions and places.¹ Finally, there were quite extensive flights with visits on the ground to some stands during three days, the following names giving an idea about the areas seen: Fairbanks, Circle, Porcupine River, Fort Yukon, Yukon Crossing, Nenana, Tanana, Lake Minchumina, North Fork Kuskokwim, McGrath, Lower Kuskokwim, Aniak, Tundra Lake, Merrill Pass, Tyonek, Anchorage.

The authors of the report, listed in the alphabetical order, are Dr. Peder Braathe, Professor of Silviculture at the Norwegian Forest Research Institute, Dr. Hilmar Holmen, Associate Professor of Peat-Land Forestry at the Royal College of Forestry, Stockholm and Dr. Aarne Nyysönen, Professor of Forest Mensuration and Management Planning, University of Helsinki. Contributions of the different authors can be found in various parts of the report; however, Chapter 4 was drafted mainly by Braathe, Chapter 5 by Holmen, and the other chapters mainly by Nyysönen, who also edited this report.

¹Institute of Northern Forestry of the U.S. Forest Service (INF) with its Bonanza Creek Experimental Forest, University of Alaska (Agricultural Experiment Station, Agricultural Farm, Boreal Arboretum, Permafrost Research, and Washington Creek Experimental Area), BLM fire bases, wood product yards and sawmill operations in Fairbanks, and Tyonek and Nenana timber sales.

Representatives of the U.S. Forest Service were with the team during the whole period of the visit, and several other experts from the Bureau of Land Management and the State of Alaska joined the tour at different stages. The authors wish to thank these and other responsible persons of the organizations previously mentioned, for their contributions to a very interesting study-tour.

2. Forest Resources

As indicated in the Forest Service reports², Interior Alaska has about 106 million acres of forest land of which 22.5 million acres were classified to have potential commercial value; that is, the land is capable of producing at least 20 cubic feet per acre of usable wood annually. If the minimum were taken to be 15 cu. ft./acre, which is only slightly more than the lower limit of forest land in Fennoscandia, an additional 4.6 million acres could be included, which would mean a total of 27.1 million acres of productive forest land. Even so, the productive forest land percentage would be less than 10% while it is around 60% in Finland and Sweden, and 21% in Norway.

The better forest stands occur mainly as belts of timber along the main rivers and their tributaries. Bottomland spruce-poplar forests often have larger tree size and somewhat higher growth rates than other forest types. Also upland spruce-hardwood stands of good sites on southerly slopes often grow rather well.

Interior Alaska has a long history of fire, but the burns have not reached all the commercial forests. After a fire, the area will commonly regenerate to aspen or birch, or to mixtures of various tree species. Interior forests are generally mixtures of white spruce, paper birch, aspen and balsam poplar, although nearly pure stands of each species are also found. On the basis of predominant volume, the main part of the commercial forest land is of white

²K. Hutchison. 1967. "Alaska's Interior Forests", PNW #19.

K. Hutchison and Schumann, 1976. SAF Report July, 1976 "Interior Alaska's Forests".

spruce type. Mature or overmature stands, 150 to 200 years old and with dominant height of 90 to 100 feet are found on good sites. Cuttings have been carried out only sporadically so far, the bulk of forests being virgin, untouched by man. All the broadleaved trees are more shortlived than the white spruce but they grow to larger size than trees in Fennoscandia.

Total growing stock volume in trees of 5 inches d.b.h. or larger, and to a minimum 4-inch top, is 14.25 mill.cu.ft. on the commercial forest land. Sixty-four percent of this volume is spruce. The average is 634 cu.ft./acre. If all the stem wood of living trees had been included, the mean volume of the growing stock would be in the region of 800 cu.ft./acre. In Fennoscandia, the present averages vary from 1000 to 1300 cu.ft./acre.

3. Utilization of Forest Products

Past and Present - As indicated by Hutchison and Schumann (1976), the Interior Forests have contributed to the well-being of Alaskans for generations. The original Alaskans depended on the forests for food, shelter, and subsistence. Hunting, fishing, house logs, and firewood are still vital to maintaining the subsistence life-style in native villages.

Before the rush for oil, the most important event in the development of Alaska was the discovery of gold. Thousands of cords of wood were cut along Interior's major rivers to fuel the steamers which supplied mining camps. Most early dwellings were constructed from logs. A vast quantity of wood was burnt to thaw gold-bearing gravels. In later years, local timber stands supplied cross ties for the Alaska Railroad and, in general, settlement and development of the interior up to World War II depended heavily on the availability of products and commodities derived from the forest resources. Since then, the relative importance of local forest products has somewhat decreased despite a population increase.

These forested lands provide important habitat for waterfowl, and large game animals. These same areas support large populations of furbearers important for their fur values and meeting the subsistence needs of the local people. The Study Team agrees that management of the forest can, in

most cases, result in increases of game animals and there is no contradiction with water yield or most recreation uses. The recreational needs of the people in Scandinavia have been mainly satisfied in production forests. However, some of the rarer environments may be threatened or even disappear in managed forests. For this reason, it is necessary to leave rather limited areas outside of cutting activities.

Lumber and cants from interior forests amounted to 13 million board feet a year a couple of years ago. After the construction of a chip mill in Tyonek, the annual cut now may be up to 100 mill.bd.ft., but there is no guarantee of the continuation of this trend in coming years. Logs, cants and chips are destined for export to Japan.

The Study Team was concerned to note that in the large cutting areas they visited in Tyonek and Nenana there seemed to be little or no consideration of future forest regeneration. This is a matter in need of urgent attention and action.

Future Demand - Interest in the Alaska's forest resources is growing as consumption of timber products increases on both a local, national and world-wide scale.

Concerning the local use of timber products, there exists a unique situation at present: the bulk of these products are imported while excellent raw material is deteriorating in the nearby forests. It is understandable that in the present-day construction of houses many special products are necessary and it is not possible or even advisable to manufacture all of these locally. Nevertheless, during a visit to a couple of sawmills and wood product yards in the Fairbanks area where the active building is continuing, the team was surprised to see that some 80 percent of wood products used are imported from Canada or the lower states. Concerning the future, it can be foreseen that increasing amounts of wood will be needed for local consumption.

Secondly, the national outlook³ wherein the country has changed from a wood exporter to an importer. Demands for industrial timber products in the United States have been increasing steadily. Further substantial increases in future demands for timber are expected. With prices of timber products relative to other materials at 1970 levels, the medium projection of U.S. demand for roundwood rises from a 1970 level of 12.7 billion cu.ft. to nearly 23 billion cu.ft. by year 2000. Potential demand for softwoods rises from 9.7 to 15.8 billion cu.ft. On the other hand, removals of softwood sawtimber as a result of timber harvesting and other factors exceeded net growth in 1970 by 18 percent. Projected supplies of softwood sawtimber products potentially available from U.S. forests show only slight increase.

There are of course a number of things which could be done in order to increase and extend timber supplies; especially, a more intensive management of forests. But the prospective imbalance between demand and supply for softwoods and quality hardwood sawtimber seems to imply that the country must depend to an increasing degree on imports of timber products.

Thirdly, interesting possibilities could be expected in Alaska from the exports of the timber and timber products in different forms: cants, lumber, plywood, chips, etc. As mentioned previously, a start has already been made in this field. One needs to pay special attention to this context to the fact that the softwood resources of the world are rather limited and that the structure of Alaskan forests compares favorably with that of the tropics.

The trends mentioned above will provide a stimulus towards developing Alaska's forest products industry in the future.

3C.f. "The outlook for timber in the United States, 1973," although it should be noted that the "energy crisis" was not considered in this timber trend projection.

4. Feasibility of Forest Production

It has been indicated there exists a considerable forest resource in Interior Alaska. There will also be a demand for the utilization of this resource, but progress has been rather slow so far. There are many reasons for this slow development, for instance, Hutchison and Schumann (1976) list the following factors: inaccessibility, lack of transportation, high manufacturing and production costs, lack of adequate resource data, inadequate market research and business management, undercapitalization, unsuitable and inefficient equipment, lack of experience, adverse climate, limited population, poor communication systems and lack of utilities.

Key problems may also be indicated by the terms land ownership, infrastructure, and industry. Some of these problems persist but many are becoming more moderate. Transportation nets are now being enlarged, for instance, by the road to the North Slope, which has made the timber of the Yukon and Porcupine Valleys more accessible. Road building seems to be cheap and simple in relation to some parts of Scandinavia. Commercial forest lands are accessible by navigable rivers. The topography is favorable to efficient harvesting. Even the lowland wet areas can be logged in the wintertime. The technology for harvesting the timber has been developed and can be transferred to Alaska; there are in fact good indications that this is already being done. Tree sizes in mature stands are completely comparable with tree sizes in Fennoscandia. The stumpage of some white spruce timber sold has been quite reasonable, only broadleaved trees frequently lack commercial value in Interior Alaska.

Although problems still exist with regard to the establishment of forestry, it will be worthwhile to study a few relevant matters combined with the physical production of wood and improved management practices.

Soils - Only a part of Alaska was covered with ice during the most recent glacial epoch. In consequence, the general topography differs from that in Fennoscandia, as well as the soil deposits that cover the bedrock. Glacial till which is the most common soil type in Fennoscandia, occurs only on high elevations in Alaska.

The soil in Alaska mostly consists of loess and silt, in some areas somewhat mixed with fine sand. Terraces of coarse river gravel occur. The greater part of the soil is of aeolian origin and is easily erodable. The soil in the river valleys has been moved several times by the rivers, and river erosion and deposition is still going on to a large extent. Partly because of glacial activities and partly because of river erosion in this special type of soil, most rivers are heavily sediment loaded. Logging activities in the slopes adjacent to rivers may cause some erosion on this type of soil. Scars may locally occur, especially in connection with necessary road building, but additional sediment loading to the rivers will be negligible in relation to the load already existing.

As a growing medium for forest trees, the soil seems to retain moisture very well. In old white spruce stands, representing the climax stage of the succession, a thick moss layer is usually developed. There is no pronounced profile pattern, and leaching seems to be very weak or absent. The pH value is rather low, 3.6 to 3.7 according to Viereck⁴. At earlier stages in the succession, in broadleaved stands, for instance, where heavy litterfall every autumn prevents development of the moss layer, the pH value seems to be between 4 and 5.

Reduced litterfall from broadleaved trees and increasing moss layer together with more shadow from spruce trees, result in a lower soil temperature at the later stages of the succession. Gradually a raw humus layer is developed.

Climate - Climate in Interior Alaska is fairly similar to that in corresponding areas of Fennoscandia. However, Interior Alaska has shorter summers, but rather high temperatures during the summer months so that many sorts of grain can ripen. The length of the growing season is between 90 and 100 days, and growing degree days varies between 1900 and 2000 alongside the interior rivers.

⁴L. A. Viereck. 1970. Forest Succession and Soil Development adjacent to the Chena River in Interior Alaska. Arctic and Alpine Research, Vol. 2, No. 1, pp. 1-26.

The amount of precipitation is very low, but the pattern of rainfall during the growing season is favorable for growth. Precipitation during the spring months of March, April and May is extremely low according to observations at Fairbanks and Fort Yukon. The soil moisture at the start of the growing season is still adequate because of water from melting snow and thawing ground water. During the summer months of June, July and August, the rainfall amounts to between one and two inches a month, and about one half of the yearly precipitation normally falls within these three months. September is also fairly rainy.

Even if the rainfall during the summer is not high, moisture does not seem to be the strongest limiting factor, partly because of the favorable pattern of rainfall. For most plants, the temperature and length (shortness) of the growing season seem to be the strongest limitations.

Winters are extremely cold, and partly also because of thin snowcover, permafrost occurs over vast areas. These, mostly flat, areas are considered as unproductive in relation to forestry and are not dealt with in detail in this report; reference to them will be made in chapter 6 only. Neither will problems of the black spruce be dealt with.

In conclusion it can be said that in spite of the unique climatic conditions of Interior Alaska, the growing conditions are rather reasonable.

Silviculture and Management - The first decision to be made with regard to the management of stands is if they will be even-aged or uneven-aged in nature. The team considered the growing of uneven-aged stands with selective cuttings to be unsuitable for Interior Alaska, as in Fennoscandia. Selective cuttings are not able to secure adequate stocking. The system is limited to the conditions where natural regeneration is abundant and the biological qualities of trees suitable, and this is not the case in Alaska. Besides the biological problems, selective cuttings are difficult and costly to carry out with heavy logging equipment without doing much damage to the remaining trees.

Regeneration - An important problem in Interior Alaska is how to establish the next generation of forest after harvesting the mature stands. In this connection it is very important to decide whether future forests should be purely or nearly purely coniferous, or to what extent mixed or even purely broadleaved forests should be accepted. So far birch, aspen and poplar timber has failed to reach the same price-level as spruce, and future relationships are expected to be somewhat similar. In Fennoscandia, great efforts are made to establish coniferous stands, with birch mostly as a fill-in tree. In Alaska it is also advisable to aim for as much white spruce as possible in future stands.

Good natural regeneration of conifers depends primarily on an adequate amount of ripe seed on seedbeds physically suitable for germination. White spruce in Interior Alaska seems to give very high crops of seed in good seed years, but these may fall up to 10-12 years apart. Usually there are, between good years, some medium or minor seed years which can considerably effect the final result of regeneration. In Scandinavia, ripening in normal years is secured to an altitude 1000-1500 ft. below the timberline, and it is assumed that ripe seed will be produced to about the same altitudes in Alaska, although there might be great variations in ripening from year to year, depending on the summer temperature.

The thick moss layer often predominant in mature white spruce stands in Alaska is an unsuitable seedbed. Natural regeneration of white spruce after a clear-cut in old unmanaged stands will be inadequate in large cutting areas, at least, and the area will usually be quickly dominated by poplar and aspen sprouting from roots and birch from stumps. A shelterwood cutting may gradually reduce the moss layer and make the forest-floor better suited as a seedbed, but experiences through research should be gained before the method is adopted on a large scale.

The experience in Alaska, as from all over the world, is that mineral soil is the most suitable seedbed. Some sort of scarification or plowing is necessary after cutting to secure adequate regeneration, the cut is made either as clearcutting or as shelter-wood cutting.

Spruce stands in Fennoscandia are commonly established by planting which usually results in a better density and higher yield in new stands. This also gives a certain freedom with regard to the seed-source and size of the area.

After establishment, natural regeneration needs regulation of spacing, and cutting or spraying away harmful broadleaf competition. In plantations the tending is usually limited to cutting or spraying broadleaved trees to prevent the young spruce trees to be overtopped and suppressed. If the tending measures are not carried out too early, the sprouts on areas under regeneration constitute valuable forage for the moose for quite a number of years.

Thinnings - Although the team did not visit any young or middle-age stands dominated by white spruce, these apparently exist as 70 percent of the commercial forest land in Interior Alaska contain immature stands. In these, thinnings would be advisable where ever feasible. The aim should be to leave a suitable number of good trees as evenly distributed over the area as possible. The main species will be white spruce, but broadleaved trees should be left, as required, to fill gaps.

The main purpose of thinning is to secure a good stand able to utilize the growth potential to the fullest extent. Another important reason for carrying out some thinnings in Interior Alaska should be to gain experience, especially on how trees respond to a better and more uniform spacing. Thinned stands will also be good items for demonstrating forest management, for instance near the native villages.

In stands where regeneration is properly tended and spaced⁵, it should be possible to control the stand development with only two thinnings during the rotation. With two thinnings most of the dead, sick and damaged trees can be

⁵Intervals between seedings being, say, 6 to 10 feet.

salvaged. If stands on good sites are to be grown to a top height of more than 90 feet, a third thinning might be necessary. In Fennoscandia, almost one half of the cut comes from thinnings.

Estimates of Potential Yield - On the basis of the results of a forest inventory, Hutchison (1967) made tentative estimates of the allowable cut in Interior Alaska. Assuming that the commercial forest area as surveyed could be managed for sustained timber production in a pulpwood economy, the estimated allowable annual cut for a 100-year rotation would be about 360 million cu.ft. This means an annual supply of about 4.5 million cords of pulpwood. The equivalent annual allowable cut of sawtimber amounts to 900 million board feet. The interior wood-using industry, if developed, would in fact provide an excellent opportunity for integrated production.

In order to make a forecast of the future production potential, the data concerning yield classes presented by Hutchison and Schumann (1976) may be utilized. Most of the commercial forest area in Interior Alaska was classified to be 20 to 50 cu.ft./acre/ year. It may be reasonable to use 30 cu.ft./acre as an average, thus the multiplication by 22.5 million acres will result in an annual yield of 675 mill.cu.ft.

Such a yield must be considered rather conservative. The growth potential in Interior Alaska is best seen in relation to the large areas of forest in Fennoscandia. During the tour, the team did not see really low-productive areas with white spruce and broadleaved trees. According to the team's judgment, based partly on yield tables for Fennoscandia, most white-spruce stocked areas will yield on the average 60 to 100 cu.ft./acre/year throughout the rotation. This yield, however, is dependent upon a normal density of regeneration and some management, such as a couple of thinnings in the rotation period to give the growing stock adequate space and to prevent mortality.

The existing yield tables for white spruce⁶, based on unmanaged stands and net growth (to 4-inch top diameter) show less than half of the yield estimates mentioned above. It is to be noticed, however, that these spruce stands were nearly always naturally established under broadleaved trees, and their overlapping production, like mortality in general, could not be included in the figures presented. The management and salvage of all trees would increase the figures considerably. White spruce shows a good and steady growth up to a high age and great dimensions. Tree dimensions in the old stands are in fact clearly larger than those of the ordinary sawtimber in Fennoscandia.

Based on these considerations, the average yield of 45 cu.ft./acre/ year in the present commercial forest area seems to be entirely possible, if the forests were to be managed properly. This would mean a total of 1 billion cu.ft. (30 million cubic meters) a year. Even this estimate may be conservative, since such measures as peat-land drainage and forest fertilization were not assumed; also 4.6 million acres of marginal forest lands (cf. p. 3) were not included.

5. Alternative Uses of Forest Land

The estimates of the potential yield presented at the end of the previous section assume a reasonably intensive management, and these yields could be achieved only after long-term work. Another assumption is that all the forest classified as commercial could be utilized for multiple-use forestry. This is a very unlikely case as there are also other strong interests for utilizing the forest land in Interior Alaska. In the following, the relationship between forestry and some alternative uses of land will be briefly examined.

⁶W. A. Farr. 1967. Growth and Yield of Well-Stocked White Spruce Stands in Alaska. U.S. Forest Service. Research Paper PNW-53.

Agriculture - A very great part of the food consumed in Alaska is imported from other parts of the United States, although there are rather good possibilities for agriculture in the State. In view of this fact, and the anticipated growth of population, one may wonder if agriculture and forestry will come into conflict with regard to land use.

It is true that agriculture is of great importance in the same latitudes in North Europe. All the agricultural land in Finland is situated north of the 60th parallel, and in Norway and Sweden much agriculture is practiced between 60 and 65 degrees N. latitude. In many sectors of agricultural production these countries are self-sufficient, or there is even over-production. Agriculture and forestry are not generally in competition but rather complement each other, with forestry providing the farmer with extra-income, winter employment, fuel and raw materials, etc.

With regard to Interior Alaska, there will be hardly any conflict between the two uses. Firstly, agriculture has to be restricted to fairly flat areas because of the risk of erosion. Slopes have to be forested for the same reason. Many areas feasible to agricultural production are in their present stage of secondary interest for forest production. Secondly, it is unthinkable that agriculture will develop to such an extent that the forest areas will be considerably reduced. Development of agriculture will in fact be beneficial to forestry by increased economic activity and more people living in the countryside.

Wildlife - In the minds of many people there is a great concern that timber harvesting will spoil the forest environment. People may think that by creating uniform stands of one species only, critical habitats will be lost and all the big game will diminish.

Modern forest management has a great impact on the environment. Habitats change, some of them may even be lost. But it must be stated that the virgin forest is not particularly rich in species and diversity. The advantage of managed forests is their variation of age-classes, there are always areas under regeneration. Even if only one species is introduced in regeneration, the new stands will seldom develop to a monoculture; other species

easily fill in the gaps. This may mean an outstanding habitat for moose, for instance.

In Fennoscandia some species of big game have never appeared in such great populations as they do today during a period of intensive timber harvesting and hunting. In Sweden, moose was close to being extinct about 150 years ago. In the years since 1945 the number of moose shot annually has increased from about 12,000 to close to 60,000 in 1976. The same trend prevails in Norway and Finland.

From a recent review on the fauna of Sweden it seems evident that no animal species has become extinct because of modern forestry practices. But there are some species, mostly birds, which may be considered endangered. Forestry may then be a contributing factor, if for instance dead trees used for nesting are removed, or a draining operation radically changes a site.

Recreation and aesthetic and social values - of forest lands are concepts related to each other. The immediate purpose of conservation has a social background as it has to produce an environment which is attractive both for the residents and the non-residents of an area. An abrupt change may be a reason for criticism. The most drastic events in the lives of forest stands is the harvesting of timber of the mature stand, and the regeneration following it. During this phase there is a change in the landscape which may be experienced negatively by many people as it interferes with the established order of things. Thorough information on the purpose of forest management is then necessary, and it has to be emphasized that the effects are only temporary. A similar succession is typical when an area has been the subject of a forest fire, which is usually accepted as something "natural".

All the forests of Interior Alaska are by no means ideal from a recreation point of view. They generally have a more dense understory than forests in Fennoscandia. For this reason the forests are less penetrable for recreationists and hunters. Managed forests will be in some stages easier to penetrate and more friendly to cross-country walkers and skiers.

In conclusion - it is of great importance to preserve from practical forestry a certain amount of typical and distinct areas. This has been recognized in Fennoscandia, too, but the total area of forest land where forestry is not permitted is a rather limited one. In Sweden, for instance, national parks, nature reserves and wildlife refuges comprise some 3 million acres of 2.5 percent of the land area, and only a fraction of that area would be suited for forestry. In Finland there is a new proposal which would mean an increase in the forest reserved for a single use up to 3 percent of the total forest area. The final decision will most probably concern a smaller percentage.

Considering the various interests with regard to the forest land, the prevailing principle should be that of multiple use.

6. Research and Development Needed

During the tour to Alaska the team made contact with many agencies and institutions and was very much impressed by the work being done in different fields. In relation to forestry and forest management it should be mentioned that as a result of improved fire-fighting techniques the nature of forests will be gradually changed. This will not mean, however, the exclusion of the fire as a possible tool in forest management. Another important field of action is forest research, the principal institutions being the Institute of Northern Forestry and the University of Alaska. Although the history of this research in Alaska is short, a lot of valuable work is being conducted. In view of the vast areas and great values concerned, however, forest research and applied research, in particular, should be greatly widened and stimulated. Experiences attained in other areas can also be applied.

Among the problems in need of continuous efforts of experimentation are various aspects of regeneration, especially those to help the establishment of coniferous stands. Also, tree species trials should be included in these experiments. Special interest might be directed to the pines, like *Pinus contorta* and *P. silvestris*.

Additional studies on growth and yield of various types of stands are very much needed. These have to be seen in relation to such areas of interest as site classification, thinning intensity, rotation, and other economic aspects of growing the stands.

There exists overall information concerning forest resources, but it was repeatedly mentioned that a poor data base is hampering the efforts of development in certain areas. The existence of good maps and various reports, and the knowledge of inventory methods, are of great help to the surveys needed.

The importance of extension work in all state and private forestry activities need to be emphasized. It will be essential to get people interested in good forest management. The best way to achieve this would be to get the forestry measures economically motivated. For this, again, the use of various fiscal incentives should be considered: lower transport fees, subsidies to promote forest production, tax exemptions, etc. Furthermore, plans for integrated forest industries should be prepared, since it is very important from the point of view of economic results to use each part of the timber for the product for which it is best suited.

An account of the possible research to be carried out with a view to the full utilization of the extensive peat-lands is still to be made. In Fennoscandia peat-lands also cover large areas. A part has been utilized for agriculture and forestry for at least 100 years. The present degree of utilization is highest in Finland, where some 12 million acres of peat-land areas have already been ditched for forestry purposes. For Sweden 40 to 50 percent of the peat-lands may be regarded as utilizable according to recent information.

Prime factors causing retarded forest growth on peat soils are a top soil, more or less water saturated, and too small store of plant nutrients in the soil. Therefore, superfluous water has to be drained and deficient plant nutrients have to be added to improve water regime and nutrient statuses. With this as a background, a general impression can be presented concerning the possibilities of increasing the forest production areas or for increasing

production in existing stands by better peat-land utilization in Interior Alaska. Typical of the Alaska peat-land is a permanently frozen subsoil which may cause difficulties in draining procedures. However, if the gradient is sufficient, a network of ditches could be dug to the depth of the permafrost or to a depth of 2.5 to 3 ft. Possibly those ditches would later deepen themselves by the thawing of the ice where the organic layer is removed.

The team had very few occasions to make field observation in the peat-lands of Interior Alaska, but from such glimpses as were had, the peat-land types look promising as to site properties. They had a sufficiently dense forest stand to initiate forest production. The composition of the field and bottom layer vegetation, which is used as a tool to estimate the nutrient status, gave the impression of a moderate to moderately high site quality.

It may be assumed that some of the extensive peat-lands of Interior Alaska might be well suited for increased forest production after proper treatment. An installation of experiments with draining and fertilization could therefore be of great interest and value.

7. Conclusion

A visit to Interior Alaska has assured the team of the existence of valuable forest resources there suitable for multiple use forestry on a sustained yield basis. Multiple use as a guiding principle will guarantee a wise use of land without ruining it, and will pay attention to the total environment which included wildlife and recreation.

The physical production potential of these forests and their importance have been largely underestimated so far. Forestry, the forest industries, and the services they maintain could outweigh the value of most of the other activities. In order to be able to utilize available possibilities, intensive research and other developments are needed. The report gives some indications concerning the orientation of these actions.

FOREST PRODUCTS INDUSTRY POTENTIAL

of the

YUKON-KUSKOKWIM RIVER AREAS

INTERIOR ALASKA

A Preliminary Appraisal for the

U.S. Forest Service Alaska Planning Team

by

**Zigmond A. Zasada
Consulting Forester**

The purpose of this report is to appraise the comparability of the forest resource found in Interior Alaska with that found in the Lake States region.

The report speaks of harvest feasibility, timber size and volume, climate and probable milling and marketing potential.

It is not the intent of this paper to forecast economic aspects relating to utilization, milling and marketing beyond meeting local needs.

October 21, 1976

Forest Products Industry Potential of the
Yukon-Kuskokwim River Areas-Interior Alaska

A Preliminary Appraisal
A report to the U.S. Forest Service Alaska Planning Team

STUDY PURPOSE

The purpose of this study is to provide the U.S. Forest Service Alaska Planning Team with information on the feasibility of harvesting and utilizing the interior Alaska forest. These forests and those of northern Minnesota are quite similar. This report is a comparison appraisal of the timber harvesting and marketing situation of both areas.

As part of this appraisal an aerial reconnaissance (including ground checks) was made of the forest area of the upper Yukon, lower Yukon, and Kuskokwim River during the period August 30 to September 9, 1976. These areas include 12 million acres of commercial forest lands in interior Alaska.

Forest area acreage, timber volumes and stand statistics are taken from forest survey and research papers of the U.S. Forest Service.

In the course of the reconnaissance, we had an opportunity to interview people knowledgeable on forest harvesting and management in Alaska.

Zigmond A. Zasada is the principal worker and author of this report. John Galea, a member of the Alaska Planning Team, assisted in the data collection, framing of questions and problems, liaison with cooperators, and with minor contributions to the written report. Keith McGonagill, Logging Specialist R-10, served as harvesting advisor and also made contributions to the report.

GENERAL FOREST SITUATION

The forest survey reports of Interior Alaska and Minnesota show that the commercial forest lands of these two regions are similar as to species composition, tree size, and stand density. The distribution and access to the forest lands is quite different. The total forest land area of interior Alaska is 106 million acres of which 22 million are classed as commercial forest. These commercial forests occur in several separate units along river drainages - Susitna, Yukon, Kuskokwim, Copper, and Tanana. These rivers provide, in most cases, the only access to the forests.

Northern Minnesota has 17 million acres of forest land of which 14 million are classed as commercial forests. These are located in one contiguous block in the northeast portion of the state. Access is by highway, railroad, and secondary and logging roads which have been constructed over the last 100 years. Water access, St. Croix, St. Louis, Rainey and Mississippi Rivers and tributaries, were used in the initial forest exploitation.

The age of the forests of the two areas is different. Interior Alaska commercial forests are mostly old-age and in the sawtimber size class. The northern Minnesota forests younger second growth forests in the pole and sawtimber class.

HARVESTING FEASIBILITY

Terrain Favorable to Harvesting

The Alaska interior forests occur as belts of timber along the main rivers and tributaries. Commercial stands also occur on the uplands adjacent to the river flats. The timber belts are not many miles back from the rivers. They do however form manageable compartments. For example the commercial forest land along the Kuskokwim River is estimated at $2\frac{1}{2}$ million acres.

It appears to be concentrated in sizeable units near Aniak and McGrath-Medfra. These could be divided up into logical land management units for timber production or multiple forest use. Northern Minnesota and eastern Canada experience indicates that this approach is feasible.

The land on which most of the commercial forests visited in the Yukon and Kuskokwim River drainages was flat and low relief. There is, however, some steep ground in these units. This is similar to northern Minnesota conditions. The topography and ground conditions, however, are favorable to efficient harvesting. The chief obstacles are the lowland wet areas and streams. In Minnesota and eastern Canada these types are logged in the winter under frozen ground conditions.

Timber Size and Volume Per Acre

The timber in interior Alaska is classed as small and low volume per acre compared to that of southeast Alaska or the United States west coast. It is in the same size class and larger than trees harvested for pulp, sawlogs, piling, poles and other products in northern Minnesota, eastern Canada, and the Scandinavian countries. Most of the stands in Alaska are old (mature to over mature). There is a large volume in the sawtimber class, also most of the volume is white spruce. With this favorable size class and conifer volume these Alaska forests can be considered to be of higher quality than Lake States forests. Size of timber should not be considered a limiting factor for its utilization for pulpwood, sawtimber and roundwood products.

The reinventory of several units in interior Alaska show the mean volume of growing stock to be over 1000 cu. ft. per acre and 60% of it to be in the sawtimber class. (Our ground checks showed volumes of 1600 to 4000 cu. ft. per acre.) This is a higher volume per acre than many large forest areas that are harvested in northern Minnesota. Here it was estimated that for the period 1966-1970 the average cut per acre on all lands harvested (approximately 175,000 acres annually) the cut was about 800 cu. ft. This included large and small operators. On most large operations the cut averaged over 1000 cu. ft. per acre. The volumes available for harvesting over large areas in interior Alaska should make harvesting operations feasible.

As a result of new developments of mechanization in timber harvesting, the current trend in north-central and northeast United States is toward more complete utilization. This is utilization of material referred to as "residue left following logging". In conifers that main stems are utilized to a 3-inch or even 2½-inch top and trees in the 5-inch d.b.h. class are cut. In hardwoods, trees down to 3-inch d.b.h. are cut and total trees including branches are chipped for pulpwood. Studies show that increased yields of 15% can be expected in conifers and 25% in hardwoods stands. Similar results can be expected in interior Alaska.

The logging operation at Tyonek, AK, uses full tree harvesting and tree length log chipping. Our estimate was that the timber recovery was high and exceeded the estimate substantially.

Climate

The climate, although more severe in the winters, is comparable to that of northern Minnesota and western Ontario, Canada. Here logging operations are carried out during the winter months. Some days are lost when temperatures drop to -25°F and below. Overall cold weather is an asset when logging low wet areas and timber stock piling is feasible. These low areas can be harvested efficiently without disturbance to the soils when frozen. The stock piled material can be shipped when transportation conditions are favorable.

Logging operations are stopped during the spring break-up period. A logger on the Kuskokwim River told me that this period will start in April and may last until July. In the Tanana spring break-up is April through mid-May. There is a potential for high water. Late summer rains can bring rivers back to flood stage. In northern Minnesota the break-up period starts about mid-March and lasts 6 to 8 weeks.

The logging equipment now in use permits people to work under unfavorable conditions of weather. Cabs on machines are closed in to get out of weather and bugs. They also make working conditions safer. There is less lost time due to weather or climate conditions using machines than under conventional logging methods of 15 years ago.

In view of the operations in northern Minnesota and western Ontario and Manitoba, Canada, an effective operating season could be worked out within the limitations of climate and season of interior Alaska.

Mechanized Harvesting Systems

The harvesting systems for pulpwood and small sawlogs have been fully mechanized in northern Minnesota, eastern Canada and Scandinavian countries since the 1960's. These systems incorporate the use of a number of machines such as feller-bunchers and shears for felling, rubber-tired skidders and crawler skidders for dragging out the timber, machine delimbing, log processors, debarkers and chippers on the landing. The tree is hauled as short logs, tree length logs, or in chip form to the mill. The combination of machines are selected to fit the product needs of operators and mills. The combination of machines can be selected to fit a small crew or 3 men or a large crew of 5 to 6 or more men.

The systems is very mobil. It does not require great installation or dismantling costs. The machines can be moved from one area to another under their own power with very little down time for moving.

Mechanization has increased man day output. For example, timber output that required 60 to 100 man camps with supporting facilities in the 1950's can be done by a 6-man fully mechanized operation, with men commuting to the job.

Based upon these logging developments it is certain that a system can be adapted to interior Alaska conditions. In fact, logging operations in the Nenana and Tyonek areas are using equipment and systems developed in the pulpwood regions of eastern U.S. and Canada. To be effective for good forest management they need supervision in the application of the system especially as it relates to ground disturbance, road location, etc., so that the logging system fits the land management objectives as well as product harvesting.

Silvicultural Systems

The white spruce, paper birch and aspen are managed as even-aged stands in Minnesota. The recommended final harvest of the mature stand is a complete clear cut. This usually provides the best conditions for stand regeneration. The clear cut can be in strips or blocks of various sizes. Research in Alaska shows that the shelterwood and clearcutting with seedbed preparation are successful in obtaining natural regeneration in the spruce type. Indications are that the selection all-age management system may be used in the white spruce type.

Studies in northern Minnesota show that mechanized tree harvesting is compatible with even-age and all-age silviculture systems. No severe soil compaction, erosion or sedimentation results from the mechanized felling and skidding operations. Haul road building is a major factor of harvesting operations that contributes to soil erosion and sedimentation. Our observations indicate that considerable less mileage of haul roads are required with mechanization. Average skidding distance has more than doubled. Skid trails require only removal of trees and no earth moving.

Research and Application

It is not within the scope of this report to recommend a research program. However, it should be pointed out that at this stage of development a program of research and application is needed. Even with the fund of knowledge available from research and experience in other areas, it is necessary to pilot test it under Alaska conditions, and where necessary adjustments should be worked out. The tests should be started now in cooperation where possible with present operators, and if not possible, should be started on a research project basis. Action now will result in

reliable guides when needed. Alaska has an opportunity of doing the research before the problems develop.

A most important point is that reliable regeneration methods be available. The variety of sites present on the river flats and adjacent foothills may require a number of regeneration alternatives. Lack of good regeneration immediately after harvesting is costly and can be harmful to future industry operation and multiple use management of the commercial forest land. The opponents to development will have a valid argument that harvesting is "timber mining".

Logging operation monitoring should be undertaken with the first harvesting to determine if impact of logging on Alaska soil is similar to that reported elsewhere. If not, harvesting patterns that are compatible should be developed.

Summary of Harvesting

A comparison of forest conditions in northern Minnesota and other regions comparable to those of interior Alaska show the interior forests have sufficient volume per acre and trees are large enough to be economically harvested for pulpwood and sawlogs. The technology to harvest and utilize this timber has been developed and can be transferred to Alaska. Silvicultural information is available to guide harvesting and after logging treatment to regenerate the forest.

FEASIBILITY OF MARKETING AND UTILIZATION

Interior Alaska has 22 million acres of commercial forest land. In the "lower 48" states the forest acreage base is shrinking annually due to "set asides" for special uses as highways, urban development, wilderness areas, parks, etc. The prospects for demand for this timber should be good if the land is not closed because of other uses.

Transportation

Unfavorable factors for utilizing this timber are long distance from market and lack of roads and railroads. A favorable factor is that the commercial forest lands are accessible to navigable rivers used in transport of supplies in interior Alaska. Also most of the timber supply can be made accessible to this river transport by low cost roads. Since the navigation season is short, approximately four months, the winter produced wood would have to be stock piled for shipment during the navigation season. There is a limited road system developed to serve the mining and agriculture industry that makes some forests accessible.

Long distance hauling of timber has been and is a forest industry problem. Most northern Minnesota mills get their wood supply within 150 miles of the plant. However, as mills expand alternate supplies are being developed. In one case, a supply has been developed 800 miles from the plant. The problem of transport for Wisconsin pulp mills is even more pronounced. These mills draw wood from western South Dakota, Montana, and Ontario and Manitoba in Canada. The same situation is developing for interior Alaska timber. The Nenana timber which is 300 miles inland is being shipped by rail to Seward and loaded on ships for export to Japanese mills. An operation at Tyonek, AK, is converting trees into chips for shipment to Japan.

It appears that the transport problem can be solved. A transport feasibility study would be desirable at an early stage to define the alternatives available.

One method used by paper mills in northern Minnesota is to have the pulp chips produced at concentration points some distance from the mills. High grade logs may or may not be separated and sawed at this point. All material not sawed is put into chips. The method of concentration yards might be a feasible method of operating and transporting timber in the Yukon-Kuskokwim area.

Mill Locations

The possible points of access for shipment of timber from the Yukon River are:

- (1) Nenana, AK - This is a railroad shipping point and a terminal for river barge shippers on the Tanana-Yukon Rivers. Currently logs and sawed cants are being shipped from this point to Seward AK. A mill for producing house logs and small sawmills are located here. This point could be developed further into a manufacturing or shipping center.
- (2) Fairbanks, AK - This city now has a small sawmill and house log industry. Highways extend from this city to Circle, Manley Hot Springs villages (approximately 175 miles) on the Yukon River. These can be timber concentration points for timber manufacturing facilities located in the Fairbanks area. Fairbanks is the terminus of the Alaska railroad.
- (3) Yukon Crossing - A proposed town location where the pipeline highway crosses the Yukon River. It is located at the west end of the "Yukon Flats". Truck haul distance to Fairbanks is about 150 miles. This is a point that could be developed as a timber concentration point or as an intermediate processing center producing chips and sawed timber cants.

for shipping by truck or truck-rail combination to Seward for export.

Truck hauls of log and pulpwood of up to 150 miles are common in the Lake States. With recent increases in railroad rates truck hauls of up to 300 miles are being started by some mills.

- (4) There probably are favorable points at the mouth of the Kuskokwim and Yukon Rivers that can serve as manufacturing and export points for timber barged down river. One sawmill operator near Aniak on the Kuskokwim River told me that Bethel is a market for part of his lumber and house log products. The material is barged approximately 150 miles to this market.

Forest Products and Marketing Potential

Interior Alaska has a skeletal access system into its interior commercial forests. A small timber industry is producing some of the timber needs of this region. The main timber needs are probably supplied by imports from the coastal areas.

Several people contacted in the course of this reconnaissance commented on the timber industry problems. (1) The main comment was that timber was not made available. The land owning agencies had no policy on sale of timber or land management. (2) The timber inventory was not detailed enough for management purposes. No good information on location of natural timber stands.

The data available indicates the forests of interior Alaska have the potential to support a sizeable forest products industry. The local demand could be supplied plus some for export. Using northern Minnesota as a comparison, the magnitude of the industry can be estimated. The forests of the two areas are similar in quality. Growth rates are more favorable in Minnesota. Alaska has more commercial forest land but it is more scattered (22 million vs. 14 million acres).

Minnesota's commercial forest lands support 8 wood pulp mills with a daily capacity of over 2000 tons of wood pulp, 5 large sawmills (each saws more than 5 million bd. ft. annually), several hundred small sawmills and a number of miscellaneous plants that produce wood chips, poles, veneer, charcoal, etc. It is estimated that about 50,000 are employed in timber and timber related industries. Forest products are the economic base for many towns ranging in population from 200 to 10,000 people.

The products from Minnesota are marketed throughout the midwest. Minnesota is not located favorably to the large market and population centers yet it has a sizeable forest products industry.

Northern Minnesota maintains a high "quality of life" rating with the forest industry. Water and air are clean. Most of the people's activities in living and recreation are "outdoor" oriented.

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LOGGING & TRANSPORTATION FEASIBILITY
OF ALASKA'S INTERIOR COMMERCIAL FOREST

A Brief Overview
by
Keith McGonagill
Logging System Specialist
U.S. Forest Service
R-10

BACKGROUND

My assignment is to assess possible logging systems and transportation opportunities in selected areas in the Alaska interior without getting involved in the economics of specific proposals.

The areas visited were in the vicinity of Black River, Porcupine River, Sheenjek River, Rogers Creek (along the Yukon), Tanana River, Nowitna River, North Fork Kuskokwim River, ^{Lower} ~~Long~~ Yukon River, and the Kuskokwim River.

The terrain on most of the areas visited was flat, with some gentle, rolling ground. However, there was steep ground along the Yukon at the mouth of the Tanana River and down stream. Also there was steep ground along part of the Kuskokwim. On the flat areas visited on the ground the soil was deep, appearing to be silty, to silty gravel or silty clay.

Ground moisture varied from dry to muskeg.

Timber volume and species composition were extremely variable with very few extensive stands of any one species. Commercial timber stands varied from small scattered areas along navigable rivers to some very large extensive areas. There were many stands of white spruce and cottonwood in the pole (5" to 10.9") and small sawlog (11" to 20.9") size classes. There are a few spruce stands with large sawlog timber (21"+).

Volumes per acre on many of the stands are comparable to low site stands in other parts of the country that are currently being managed for their timber resource. Measurements taken on this trip showed volumes of 14 to 50 cords per acre, which is sufficient for economic skidder operation.

TRANSPORTATION

Water transportation is available to much of the area and it should be used to the maximum. Logs or chips can be barged to mills located along navigable rivers. It may be desirable to chip logs in the woods. An economic analysis would indicate the best mill locations and whether logs or chips should be barged. If logs are chipped in the woods, in many cases the chips can be blown directly aboard a barge.

Logs yarded in the winter will have to be cold decked for later shipment when the ice has moved out.

Manufactured products can be barged down navigable rivers to ocean vessels for shipment to other Alaskan coastal ports or to Pacific Rim countries.

Truck roads will be needed to move logs that are too far to skid or yard, directly to water transportation. On flat terrain with deep soil road construction costs will be minimum. Gravel is available for some surfacing. The availability of gravel depends on road and pit locations.

On the steeper ground, road construction and impact can be greatly minimized through the use of light "European-type" or suitable U.S. cable systems.

The distance that logs can be trucked or hauled from the stump to possible mill sites, or barge loading sites along navigable rivers, are comparable to log haul distances in established woods industries in most of the lower 48 states. The economic feasibility of doing so will hinge on market demands.

LOGGING

The flat terrain generally found in the interior is suited to rubber tire skidder operation. The timber is small and can be readily yarded by smaller machines. The flat terrain is also suited to the use of feller bunchers which are designed to reduce falling and skidding costs.

Examination by a soil scientist will determine if soil compaction from skidder operation might be a problem on soils in the area.

A combination of summer and winter yarding is desirable to provide economic stability. Wet soil and compactible soil should be skidded on in the winter, on the snow; dry, noncompactible soils skidded over in the summer.

Skidding costs are readily available and can be used to determine stands with sufficient volume to permit timber management, truck road spacing, maximum skidding distance, landing locations, etc.

On flat terrain yarding by skidder is more economic than yarding by cable. If the cost of site preparation is high, consideration should be given to the value of high load logging as a means of site preparation.

SUMMARY

In summary, I found that adequate volume of merchantable timber exists in interior Alaska. This coupled with forest survey information published in PNW #19, strongly indicates that a viable integrated woods industry can be established in the interior. Tree size and ground conditions lend themselves to timber harvesting techniques presently used in similar geographic areas.

NORTHERN FOREST RESOURCES
Challenge and Opportunity

By

Terry T. Brady, forester

Forests North, Ltd.
2805 Dawson St.
Anchorage, Alaska 99503

Presented at
Symposium on North American Forest Lands North of 60 Degrees

University of Alaska Fairbanks

September 20, 1977

Northern Forest Resources

Challenge and Opportunity

Terry T. Brady

Northern latitude forests offer mankind both a challenge and an opportunity.

The opportunity is to use forest resources for the social and economic benefits of northern peoples, and in making up expected deficits in future world needs of wood, water, open space and certain wildlife habitats.

The challenge is to develop and manage these forests without destroying the base from which they originate.

I have worked with and about forest and other natural resources in the Pacific Northwest and Alaska for more than 25 years, and all my instincts and intellect tell me this challenge can be met--and the opportunity turned into assets.

However, this can only happen if we go about the work at hand with a positive attitude. The challenge is not one for fainthearted individuals, corporations or governments. Negative thinking has no place in this endeavor.

And, neither do preconceived notions about economic, or other values of northern forest resources. Particularly those notions that assign low economic values to forest resources based on little understood biologic site production ratings for forests that have either not been managed, or have been mismanaged in the past.

Any forester knows that site productivity of forest lands in Alaska, much of Canada, and Eastern Siberia is going to be lower than that of the best sites in the Pacific Northwest or California. But determining that northern forests are uneconomic to manage, based on that criteria alone, overlooks other advantages that may accrue to the northern forest manager. Species, quality, market location, lack of other competing uses of land, and many other considerations must be weighed.

Northern forest values are, and will continue to be, subject partly to the effort we in the North put into enhancing these forest resources; and partly by economic demand pressures imposed by other parts of the world.

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For example, using the northern forest wood resources, whether coniferous or deciduous, to make up expected shortfalls in the world supply, in both the short and long term future, will benefit both the market and producing regions. Softwood framing lumber from Alaska could aid in meeting the demand for single and multi-family housing units in Japan, Korea, Taiwan or conceivably even China. Trade funds generated by such transactions would in turn aid Alaskans and Canadians in their quest for a higher standard of living.

Yet such trade may not occur, at least on a large enough scale, in a short enough time frame, to benefit this generation of Alaskans--Not unless very basic attitudes and policies emanating from some persons and agencies of our state and federal governments, and "citizen experts," some far removed from the actual Alaskan social and economic scene, are changed.

To be specific. I know of a 10 year effort by a major Far Eastern construction consortium to purchase, at prevailing market prices, 250 million feet board measure, per year, rough sawn, air dried, Alaskan spruce lumber.

They have received nothing from Alaska, except governmental "run around," discouragement, and a few samples of 4 x4's for testing purposes.

This buyer's problem does not stem from lack of resource. The resource is here, and research has shown it is here in volumes required to meet this market, and more. With modern harvesting equipment, state-of-the-art milling techniques, imaginative transportation systems, and by the seller taking advantage of marketing organizational structure and exporter tax breaks sanctioned by the U.S. Government, the project could be profitable.

However, because of land ownership and control controversies; lack of basic forestry policies; poor and monopolistic transportation systems; and most of all, negative reactions from state and federal authorities, some corporate leaders, and a vocal minority of the American public bent on keeping Interior Alaska Forest product industries from being established, this project has been discouraged through this time.

To those who state there are not markets for high latitude Alaskan timber products, I ask--What is a market if it is not a buyer able and willing to pay the going price?

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Put yourself in the buyer's position when visiting Alaska, funds in hand, to begin what he feels is a simple "buy-sell" transaction. He sees forests where natural mortality exceeds growth. He views coastal beaches and river bars piled high with deteriorating logs. He witnesses poor, wasteful harvesting operations, and antiquated sawmilling methods. He asks to discuss forest management policies for public and private land, and finds there is nothing to discuss, because there are few, if any, policies.

His confusion is compounded by viewing feverish non-renewable resource exploitation--a proliferation of new government buildings, and banks and office buildings, all under construction. And then witnesses people living in village and urban hovels. People faced with the highest cost of living and the highest unemployment rate in the United States.

It is all incomprehensible to the buyer to find waste, extravagance and poverty all operating side by side in Alaska. Common sense tells him that the renewable resources he wishes to purchase, on a long term basis, could be the basis for an economic endeavor that could solve some of the problems witnessed.

I personally share the buyer's confusion. Especially when I am aware of some of the factors that make it impossible for him to purchase the resource he seeks. These factors include the tardiness of Alaskan Native and State of Alaska land conveyances from the federal government, and provided by the Alaska Statehood Act and the Alaska Native Claims Settlement Act; and the total assinnity and excessiveness of the potential of having 100 to 150 million acres, much of it forested, removed from multiple use classification. This latter is federal land, that belongs to all the people of the nation, including the people of Alaska, who must depend on this land for their livelihood. The use of this land could aid Alaskans in "PAYING THEIR OWN WAY" and lessening dependence on the federal government and other U.S. citizens.

I have described one project of which I am familiar. I would like to continue discussing the Alaskan situation a bit longer before venturing into the broader realm of world demand for wood.

In describing the potential project, I stated the buyer wished to purchase 250 million feet board measure of lumber per year. By applying conversion factors, rules of thumb, and assuming 50 per cent of logs harvested for the project would be converted into lumber, I have determined approximately 41 million cubic feet of logs would be harvested for the project each year.

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This would mean only taking approximately 12 per cent of Interior Alaska's preliminarily determined annual allowable cut of 358 million cubic feet (10.1 million cubic meters) as reported yesterday by Professor Zivnuska in his remarks opening this symposium.

This means that at least eight such projects, or others, harvesting similar timber volumes, could be absorbed in Alaska's high latitude forests, before the preliminary, and in my view, conservative preliminarily determined sustained yield harvest is reached.

Allowing for realistic classification of some land as wilderness, national parks, wild and scenic rivers, and as ecological study areas, it seems reasonable to expect six such projects could be in operation. At today's values, and assuming lumber was the major project, 1.5 billion feet board measure lumber could be sold, with a value exceeding \$300 million per year. Other forest products would also be involved, increasing this value.

Such income, from a now unused, and by some definitions, "wasted" resource, would go a long way in mellowing Interior Alaska's cyclical "boom" and "bust" economy.

Other product potentials from Alaska's Interior forests are veneer from softwoods and hardwoods, chips and flakes for pulp and composition board, fuel and chemicals.

I would now like to comment on future world wood needs and this demand in relationship to high latitude forests.

J.L. Keays, Department of the Environment, Canadian Forestry Service, in a 1975 paper "Projection of World Demand and Supply for Wood Fiber to the Year 2000," noted that the conservative total world demand for wood by the year 2000 will be 4,000 million cubic meters per year, compared with a total cut of 2,400 million cubic meters in 1972. (This can be further compared to Alaska's projected annual sustained cut from high latitude forests of 10.1 million cubic meters, or .25 per cent of the world demand projected for 2000.)

Keays further stated that of the increased requirement of 1,600 million cubic meters, some 650 million cubic meters of wood per year could come from the use of unexploited coniferous forests.

It should not take a trained forester, or economic geographer to determine that the only large, unexploited coniferous forests in the world are predominately in mid-high and high latitudes of Siberia, Alaska and Canada.

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Keays adds nine other categories from which the increased wood yield could come. These include; closer utilization of the world's forests; additional conversion of mill wastes; increased plantations; shorter rotation cycles; improved silvicultural methods; increased use of hardwoods (which would come heavily from northern forests); development of stronger pulps; increased yields across the digester; and reduction in loss through fire, decay, alienation for forest lands; and other miscellaneous causes. The ten category sources of increased wood production, all bearing on northern forests in one degree or another, would result in a total increased annual harvest of 1,400 million cubic meters, by the year 2000, according to Keays.

This, predicts Keays, would result in a shortfall of 200 million cubic meters per year, by 2000 A.D. Keays further states, to place this (shortfall) value in perspective, it is approximately equal to Canada's present cut of industrial wood. (To put it in further perspective, it would be 1,900 per cent of Interior Alaska's projected annual sustained yield

Keays points out in his paper that his demand estimates, taken heavily from reports of the Food and Agriculture Organization of the United Nations, are conservative.

Keays is not alone in predicting increased wood fiber demand. The study, "The Pulp, Paper and Paperboard Industry; It's Profits, Future Development and Investment Risk," compiled by Euro-Data Analysts of England, and completed September 1976 made similar findings. The study concludes that world demand for paper and board, between 1975 and 1985, will rise by 30.6 million tons, followed by an additional 104 million tons demanded beyond 1985 to 1995.

Another key finding, quoted in the "Proceedings of the World Consultation on Wood Based Panels," held in New Delhi, India, February 1975, came up with future world demand figures similar to those published in Keays' report. This report states the world consumption of round wood in 1973 was 2,500 million cubic meters. This consisted of about 1,200 million cubic meters of fuelwood and 1,300 million cubic meters of industrial roundwood, the latter being made up of 800 million cubic meters of saw and veneer logs, 300 million cubic meters of pulpwood and 200 million cubic meters of other roundwood.

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The growth in total wood consumption over the past ten years (prior to 1975) was at the rate of 1.5 per cent per annum. The report concludes, "It is estimated that total wood consumption will continue to increase by 1.5 per cent to 3,060 million cubic meters by 1985."

Another publication, "European Timber Trends and Prospects, 1950 to 2000" available from the Food and Agriculture Organization makes an important comment concerning future prices of forest products. Though the comment is addressed to Europe, it seems appropriate to apply it to other regions, as the world forest products industry is becoming more and more intertwined. The publication states, "The evidence suggests that in the next quarter century (beginning 1976) prices for forest products, relative to prices in general, may tend to rise, making a change from the more or less stable trend during the two decades before the violent cyclical movements in 1973-75."

Yesterday Professor Zivnuska said he and a group of associates take the view that the Food and Agriculture Organization's, and other predictions, of world demand are high. Assuming this is correct, and further assuming that demand may rise only 1,000 million cubic meters per year, as opposed to Keays' prediction of 1,600 million cubic meters, it would seem logical that Alaskan and other high latitude supplier need not be worried about marketing products.

Most of this lesser rise in demand would still come from undeveloped coniferous forests, and hardwoods, both of which are found in high latitudes.

High latitude woods are unique. Northern slow grown softwoods, with tight annual ring structure, make superior building materials, easily worked by machines, with high nail holding ability, and excellent weight to strength ratios. Northern hardwoods make excellent veneers, and are prized for their light colors.

Scandinavians do not domestically consume all the wood they produce. The export, because they can sell a good product. There is a lesson in this for Alaska and Canada.

It would seem Alaska, with its favorable Pacific Rim geographic location, with a comparatively small annual cut potential, will be asked to contribute its fair share to the rest of the world?

WRANGELL MOUNTAINS AREA

A SUMMARY OF RESOURCE INFORMATION

SOURCES: WRANGELL MOUNTAINS NATIONAL FOREST (PROPOSED)
FINAL ENVIRONMENTAL STATEMENT
USDI-1974

COPPER RIVER-WRANGELLS AREA GUIDE (PRELIMINARY)
USDA, FOREST SERVICE
FEBRUARY, 1977

- Quality scenic mountain grandeur
- Accessibility - Roads - Glenn Highway, Richardson Highway, Edgeton Highway
McCarthy Road, Nabesna Road
Trails
Airstrips - communities, mining, hunting
- Historic Geologic and Environmental Interests; Copper and Northwestern Railroad
- Kennicott Mine and McCarthy
- 2.6 million acres easily usable for dispersed and developed recreation opportunities
- Water oriented recreation
rivers and lakes - Hanagita - Tebay Lakes
Bremner Wild River, Copper River, Chitina River
- Hunting, Fishing, Wildlife Observation and Study
- Wilderness, primitive camping, backpacking and mountaineering opportunities
extensive
- Provides diversity of experiences - rock-hounding, recreational driving, winter
sports, tourist facilities.

MINERAL RESOURCETwo Very High Mineral Potential Areas:

Northeastern Wrangells - Nutzotin Range

Copper -- 2 billion tons at .03%

Molybdenum - by product

Silver - by product

Southern Wrangells

2 million acres of "highly favorable" and 1.6 million acres of "favorable mineral potential.

Copper - Kennicott-type lodes

Gold - Placer

Silver - extent not presently known

Mining Claims

Total Claims	1019
Ownerships	110

WILDLIFE RESOURCE

Dall sheep - world famous trophy area, 14% of state harvest

Moose, caribou, grizzly bear, mountain goat and bison also important-

-about 200 non-residents use local accomodations and guide service

-300 resident hunters

Waterfowl - trumpeter swans - Bremner River and Copper Delta

- Northway - Tetlin wetlands

Upland game - grouse, ptarmigan, snowshoe hare, common

Fisheries - Copper River and tributaries support high value salmon resource important for commercial and subsistence.

- Sportfishing for trout, grayling, whitefish

Viewing and nature study rapidly becoming more important use.

TIMBER RESOURCE

- 25% forested
- 1.3 million acres of forested lands
- 170 thousand acres of commercial forest lands
- includes white and black spruce, aspen, paper birch and cottonwood
- Standing commercial volume 680 million board feet
- Annual potential yield 12 million board feet

The Copper River - Wrangells Area include: (from Copper River Area Guide - Preliminary - USDA-USFS, 1977)

- 6.9 million acres of forest
- 829 thousand acres of commercial forest
- standing commercial volume - 3 billion board feet
- annual potential yield, 84 million board feet

Job opportunities based on 7 direct jobs and 3 indirect jobs can result in 840 positions.

Present use of timber is primarily for local consumption of houselogs, green lumber and firewood.

ARABLE LANDS RESOURCE

Climatically unsuited to extensive agriculture. Some garden plots are successful.

Some limited potential for recreation pack and saddle stock grazing by guides and outfitters. (207,000 acres)

WATER RESOURCE

Principal Rivers:

Copper River Drainage -
Chitina River
Bremner River

Tanana River Drainage -
Chisana
Nabesna

Discharge -

Copper River below Chitina - 37,000 cfs

Power -

Wood Canyon Reservoir possibility:
High dam 21.7 billion kilowatt hours
- \$20 million annually
Low dam 10.3 million kilowatt hours
- \$10 million annually

Would inundate the Chitina Valley and Copper River up to Glenallen.

PORCUPINE AREA

A SUMMARY OF RESOURCE INFORMATION

SOURCES: PORCUPINE NATIONAL FOREST (PROPOSED)
FINAL ENVIRONMENTAL STATEMENT
USDI-1974

YUKON-PORCUPINE AREA GUIDE (PRELIMINARY)
USDA, FOREST SERVICE
APRIL, 1977

RECREATION RESOURCE

- Few outstanding or spectacular scenic attractions other than the Rampart Canyon on the Porcupine River. Many opportunities for hunting, fishing, and wilderness related recreational experiences.
- Sports fishing on remote lakes and freshwater tributaries of the Porcupine and Yukon Rivers; riverboating, canoeing, or rafting down rivers through primitive country; large numbers of waterfowl, providing hunting, photographing and scientific study opportunities; as well as big game hunting, are the principal outdoor recreation opportunities.
- Currently few visitors utilize the area - this will probably change in the future. Potentials for recreational development exist.
- Future recreational experiences could be enhanced by development of public recreation facilities.
- Proposed Sheenjek and Porcupine Wild and Scenic Rivers offer unique opportunity for water oriented recreation, along with the Yukon, Colleen, and other rivers in area.
- Road access into Fort Yukon, or possibly to Old Crow in the Yukon Territory, would greatly increase recreation activities, especially canoeing, riverboating, and sports hunting and fishing.

WILDLIFE RESOURCE

- Waterfowl - 900,000 acres of wetlands.
 - 100 ducks per square mile
 - estimated 400,000 contributed to flyways annually.
- Moose, caribou, black bear, and grizzly bear, waterfowl and upland game, are important sources of food for subsistence and recreation.
- Small but growing commercial salmon fishery at Ft. Yukon.
 - estimated 270,000 annual spawning escapement.
 - Sheenjek River important chum salmon spawning areas.
- Sport fishing (6 species) important for both subsistence and recreation.
- Nesting habitat for endangered peregrine falcons, other raptors, and various cliff nesting birds in canyons of Porcupine, Colleen, Sheenjek, and other tributary rivers.
- Fur - muskrat, beaver, lynx, mink, and marten, most important income producing species.

TIMBER RESOURCE

- 70% with forest cover (3.8 million acres)
- 9.5% commercial forest (360,000 acres)
- Includes white and black spruce, aspen, paper birch and balsam poplar.
- Standing commercial volume 720 million bd. ft.
- Annual potential yield 20 million bd. ft.

Yukon-Porcupine Area (from Yukon-Porcupine Area Guide USDA-USFS)

- 20.4 million acres of forested lands
- 2.9 million acres of commercial forests
- Standing commercial volume 7.1 billion board feet.
- Annual potential yield of 275 million board feet.

Job opportunities based on 7 direct and 3 indirect jobs per million board feet of processed timber products result in 2750 positions.

ARABLE LANDS RESOURCE

- Considerable area within and adjacent to the proposed National Forest has been identified as having agricultural or grazing potential. Recently completed SCS Exploratory Soil Survey shows some 1.2 million acres of lowland soils, 50% or more suitable for farming on National Forest lands, exclusive of Native selection lands. Climatically, these areas are also identified as having potential for agriculture use.
- Home gardening is only current agricultural use. The only use of forage is for wildlife. However, as changes take place in agriculture technology, the economic condition of the region changes, and world demand for food increases, expanded agricultural activity could take place.
- Adjacent private lands (Native) will have an estimated 1.1 million acres of soils that are 50% or more suitable for farming. First agriculture development in region would probably take place here.

WATER RESOURCE

- Porcupine River and its tributaries are the dominant drainages of the proposed National Forest. Porcupine and Yukon Rivers are navigable.
- Precipitation over entire area is only 6 to 10 inches annually. Flooding of both Yukon and Porcupine in Ft. Yukon area has occurred (usually at breakup). Average flow of Porcupine above Sheenjek River is 14,000 cfs. Principal tributary rivers in Forest--the Sheenjek, Colleen, and Black Rivers--are relatively clear.
- The most significant water power energy potential is the Rampart project to the west of Yukon Flats. The impoundment would extend up the Porcupine River to Canyon Village, inundating most of the lowland area of the Porcupine Forest. (See special issues.) Another powersite has been identified on the Porcupine River near the Canadian border. Project has energy potential of 2.46 billion kilowatt hours per year. Seventy-five square miles on U. S. side would be inundated.

YUKON-KUSKOKWIM AREA

A SUMMARY OF RESOURCE INFORMATION

SOURCES: YUKON-KUSKOKWIM NATIONAL FOREST (PROPOSED)
FINAL ENVIRONMENTAL STATEMENT
USDI-1974

CENTRAL INTERIOR AREA GUIDE (PRELIMINARY)
USDA, FOREST SERVICE
JULY, 1977

ALASKA WILDLIFE MANAGEMENT PLAN (DRAFT)
ALASKA DEPARTMENT OF FISH AND GAME
1977

MINERAL RESOURCE

940,000 acres "highly favorable" and 4.7 million acres "favorable" for mineral potential.

Gold - 40-60,000 ounces produced in McGrath region.
Extensive placering in Ruby, Poorman area.

Lead, Zinc, Tungsten, Manganese - Some potential.

Mercury - Extensive cinnabar province to south.
A major U. S. producer is just east of proposal at White Mt.

Claims: 1800 active claims in area.

Oil and Gas - Low potential, though some tertiary deposits present.

WILDLIFE RESOURCE

Wildlife is abundant. Fish and game species, of importance for subsistence use, are found throughout. Recreational uses increasing - Some conflicts occurring with subsistence use.

Moose - estimated 1,000,000 acres key winter range - lower drainages and waterways.
 - estimated 500-700 harvested annually GMV19

Caribou - 1,290,000 acres winter range
 - 1,705,000 acres summer range
 - Beaver herd 3000
 - Cloudy Mt.- Sunshine Mt herd estimated up to 1000

Waterfowl - 3,450,000 acres fair to good waterfowl habitat
 - 120 Trumpeter swans -Nowitna-
 - 108,000 waterfowl produced annually - Nowitna Flats (14 yrs ave. 1957-70)
 - 67 birds per square mile - Nowitna Flats

Other - black bear abundant lower forested areas
 - grizzly - good populations uplands - numbers unknown
 - wolves common throughout

Furbearers - abundant
 - marten, beaver, lynx important
 - most other fur species present

Upland game - Grouse, ptarmigan, snowshoe hare, number variable - generally common

Fisheries - important for subsistence and some recreation - 3 species of salmon (king, silver and chum)
 - grayling, pike, sheefish, burbot and whitefish
 - Swift, Tatliwitsuk, Selatna and east fork Kuskokwim provide important spawning areas
 - High Power creek above Telida - spawning for sheefish

TIMBER RESOURCE

- Over 80% forested (5.8 million acres)
- 16% commercial forest (1.2 million acres)
- Includes white and black spruce, paper birch, aspen and balsam poplar.
- Standing commercial volume; 2.83 billion board feet.
- Annual potential yield - 80 million board feet.

The Central Interior Area includes (from Central Interior Area Guide-Preliminary - USDA-USFS 1977)

- 39 million acres of forested lands.
- 4.5 million acres of commercial forests.
- Standing commercial volume of 9.5 billion board feet
- Annual potential yield of 290 million board feet

Job opportunities based on 7 direct jobs and 3 indirect jobs per million board feet of processed products can result in 2900 positions assuming all the timber resource is utilized and processed.

RECREATION RESOURCE

No outstanding or spectacular scenic attractions, however, remoteness and lack of development provide wilderness character.

Excellent boating and canoeing opportunities on river systems.

Hunting and fishing for recreation growing in importance.

Fly-in trips in primitive areas offer excellent potential for dispersed recreation.

Nowitna River is a Scenic River proposal.

ARABLE LANDS RESOURCE

On National Forest - 440,000 to 875,000 acres of soils suitable for agriculture occur in an area of 1.7 million acres in the proposal exclusive of Native selection areas.

On private - Native village selection areas within the proposed boundaries contain an area of 1.3 million acres with 325,000 to 650,000 acres of arable lands.

Grazing - Grazing for reindeer would be possible on $3\frac{1}{2}$ million acres. It would displace Native caribou.

WATER RESOURCE

Rivers - Yukon, Kuskokwim and Nowitna are navigable rivers.

Controlling depth - Yukon - 7', Kuskokwim - 3', Nowitna - 2'.

Flow - Yukon - 170,000 cfs (at Ruby)
Kuskokwim 14,000 cfs (at McGrath)

Power - Would cause extensive impoundment.

	<u>Billion KWH/Year</u>	<u>Power Value Per Year</u>
Ruby Low Dam	6.4	\$65 million
Ruby High Dam	14.2	\$140 million
Kaltag	13.1	\$130 million

Additions to:

CHUGACH NATIONAL FOREST

(Proposed)

A SUMMARY OF RESOURCE INFORMATION

SOURCE: CHUGACH ADDITIONS

FINAL ENVIRONMENTAL IMPACT STATEMENT
USDI-1974

COLLEGE FIORDTIMBER

The commercial forest in this unit is mainly western hemlock. Sitka spruce is found in mixture with both western and mountain hemlock creating some spruce-hemlock type.

These tree species are at the northern limits of their distribution. Climatic conditions are more severe than in most other areas considered to be coastal forest in Alaska. Only very small quantities of commercial forest can be found above 1,000 feet.

There are some commercial sites at the lower elevations on the shores of College Fiord. Sitka spruce and cottonwood are the primary species. Around Vassar Glacier the trees are easily accessible by water, but are growing on marginal sites and subject to frequent avalanche scouring.

The timber is principally (1) overmature, decadent old growth, with some minor amounts of young growth in primary stands or (2) is located in areas harvested during the early railroad, mining, and fisheries development periods in south-central Alaska. During World War II, significant areas were harvested in College Fiord, Pigot Bay, and Mosquito Creek.

Volumes per acre in operable commercial stands fall in a range of between 20 and 30 MBF/acre. Generally volumes are lower than found in Eastern Prince William Sound or on Montague Island. Stands considered to be operable are generally small and scattered.

RECREATION

Recreation resources within this unit make it highly attractive to both the local recreationist and the tourist. It's scenic, forested and alpine country includes almost every type of recreational opportunity found in any coastal area of Alaska. Boating, hunting, and fishing are most commonly associated with the College Fiord Area.

Scenic values are extraordinarily high along the ferry route from Whittier to Valdez. Increasing numbers of small boating recreationists will also be utilizing the area in years to come since installation of the boat harbor at Whittier.

WILDLIFE

The major big game species are mountain goat (Harriman and College Fiords) and black bear (scattered throughout lower vegetated areas). Wolf, wolverine, mink, marten, and otter are known furbearers. Harbor seal are abundant at the fore-fronts of the various glaciers, and sea otters have been recorded in Harriman Fiord. Sea lions also occur. Sea birds are abundant at the forefronts of the glaciers and along the shorelines. Rookeries occur in Harriman Fiord and Yale Arm. Bald eagles are found in the coastal areas. Nesting densities are not known. A limited number of songbirds, shore birds, and small mammals also inhabit these areas.

Miner's Lake is only partly glacial and has one clear tributary supporting small sockeye and pink salmon runs.

MINERALS

There are no known oil, gas, or coal deposits in the addition, and none are likely to occur. The entire area has moderate to high potential for metallic mineral deposits and gold, silver, copper, lead, and zinc mineralization is known to occur. Copper has been discovered in the Miner's Bay area together with minor nickel, lead, silver, and zinc. There has been no known commercial production from the College Fiord area.

ARCHEOLOGIC AND HISTORIC

There is little or nothing known of the historic background and archeologic values within the lands considered in the proposed College Fiord addition.

NELLIE JUANTIMBER

Small stands of spruce, hemlock, and cottonwood may be found in the Nellie Juan River bottom, but these are insufficient to support a sustained cut of timber. Its chief value now is aesthetic and as wildlife habitat.

WILDLIFE

Wildlife and fish are limited to certain key areas due to weather and topography. Black bear are generally abundant and a few brown bear are found around the Nellie Juan River area. Moose are also found in this area in very limited numbers.

Pink and chum salmon spawn in the clear water tributaries of the Nellie Juan River. Some sea-run Dolly Varden also occur. Sport fishing is negligible or nonexistent, although there is some potential.

RECREATION

The Nellie Juan Wilderness Study Area comprises over 50 percent of the land area and is being managed in an undeveloped manner while the study is being conducted. The addition is mainly a part of the wilderness study area. It has great potential for high quality wilderness experience. Scenic values in the alpine rock and tundra valley with glaciers and snow capped peaks are very high.

Limited hunting occurs.

MINERALS

Geology, based on a single traverse along the southern part of the Nellie Juan River has been mapped as graywacke and slate cut by dikes and quartz veins. Information on the metallic mineral resource is scarce, but the geologic setting appears favorable for gold, silver, copper, and related mineralization, and falls alongside a broadly defined high potential mineral province. The 1967 Geological Survey metallic mineral resources inventory shows no known prospects or mines in the area. There are no known oil, gas, or coal deposits in this area and none are likely to occur.

WATER HYDROELECTRIC POTENTIAL

There is a 12,210 acre power withdrawal along Nellie Juan Lake and River. There are no active studies or proposals on the project.

ARCHEOLOGIC AND HISTORIC

There is little or nothing known of the historic background and archeologic values within the lands considered in the proposed Nellie Juan addition.



USDA ALASKA
A Program for People

United States Department of Agriculture

RURAL ALASKA — A USDA Challenge

1081



Rural Alaska is undergoing rapid changes due to landownership reallocation resulting from Statehood and the Alaska Native Claims Settlement Act (ANCSA). In 1975, only 7% of Alaska was other than federal land and of this only 3% was private. In 1980, 37% of Alaska will be in State and private ownership. In area, this is about three times the size of Minnesota. About 12% or some 45 million acres will be private lands, subject to land and resource management decisions requiring a high degree of sophistication. This is occurring in rural Alaska, where a significant portion of the population is moving from a semi-nomadic subsistence economy into a site-specific money economy.

The need for transitional assistance is great and the USDA family of agencies could provide a major input into this "new frontier" as they have in the contiguous 48 States. The research base, resource information, rural assistance capability, educational delivery systems, and cooperative programs for human and natural resource enhancement are unequalled in any other federal department.

The Rural Development Act of 1972, recognizes this capability and vests in the Secretary of Agriculture the authority to call upon and coordinate the programs and activities of all Executive Branch departments and agencies within rural areas, to improve the quality of life of the people living in nonmetropolitan America. The challenge is a formidable one with Alaska having unique climatic, sociological, and land-ownership situations in which decisions will affect not only rural Alaska, but will influence, in a significant way, the Nation.

To meet the challenge of rural Alaska, USDA will place continuing emphasis on current and emerging programs which provide cooperative assistance to the State as well as private landowners. In broad terms, the programs include: assessment of soil, water, vegetation, and human resources; assistance in land planning/utilization; and rural development. USDA efforts will continue to complement the State's effective and aggressive programs in resource inventory, development and protection of environmental quality for agriculture, forestry and rural community development.

To provide USDA services to all rural Alaskans (Native and non-Native) as well as State government, it is recommended that Alaska be made a common jurisdictional boundary for all USDA agencies, and delegations be made to all agency heads in Alaska. It is also recommended that co-located field offices be established and staffed by professionals from those agencies having service responsibilities within a given area. Further, it is recommended that locally hired and trained paraprofessionals, supported by field office staffs, be provided in rural Alaskan communities.

Programs for People in Rural Alaska

Alaska is truly a great land. Often poorly understood -- geographically, climatically, socially; Alaska is different.

Geographically Alaska is

- a huge land:
- *586,000 square miles -- one fifth the total U.S.
- *Spanning 4 times zones
- *33,000 miles of coastline -- more than all the other 49 states combined
- *5,000 glaciers
- *East-west dimensions stretch from the Carolinas to California

Alaska is a land rich

- with resources:
- *Great wealth of gold and furs have been taken in past years
- *Commercial annual harvests of fish and timber are legendary.
- *Abundant fish and wildlife populations provide the basis for a subsistence life
- *Sport hunting and fishing and opportunities for observation and nature study are world-renown
- *Oil from Prudhoe Bay now fuels American autos

*Scenery of unequalled quality and quantity.

*The Nation's largest acreage of untouched wilderness

*Recreational opportunities are limitless

*Solar insolation during the growing season equivalent to that of northern Illinois and central Iowa

*2 trillion tons of identified coal reserves

*The world's largest urea fertilizer plant is located at Nikiski

*Proven oil reserves equal to 25% of the U.S. total

*Bountiful gas reserves

*Forests covering 119 million acres

*40% of the nation's fresh water supply

*20 million acres of tillable agricultural soils

*Proven production of agricultural crops equaling and/or surpassing national averages

But Alaska is more than a great storehouse of resources to be extracted for the benefit of others. It is now a full-fledged State, a land of people -- sparsely populated -- but with the same rights, aspirations, and needs as all U.S. citizens, including the Alaska way of life or lifestyle.

CHANGING CONDITIONS

The intent of the Alaska Native Claims Settlement Act was to provide for "... a fair and just settlement of Native claims ... with certainty, in conformity with the real economic and social needs of the Natives."

State and private lands in Alaska will mushroom from less than one million acres in 1971 to over 148 million acres when selections are complete. This dramatic increase has placed major demands on the capabilities of State and Federal agencies. They should have the same

The burden is especially heavy in the 214 rural communities -- of which many are changing from a wilderness subsistence culture into the 20th century world of business.

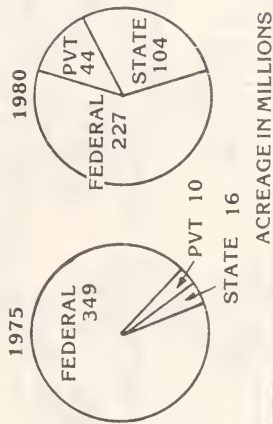
The Native villages and regional corporations have developed sound organizations and objectives to meet the goal of self sufficiency within the relatively short period anticipated by ANCSA. However, transitional assistance is an important element in achieving their goals. They should have the same

opportunity to utilize scientific and technological advancements in agriculture and forestry.

The challenge of meeting rural Alaskan needs is tremendous. Rural communities are dispersed over distances equivalent to that between Washington, D. C. and San Francisco. Land transportation is very limited. Aircraft provide transportation for 95% of the food and material. But the costs are staggering -- up to 200% higher than the National average.

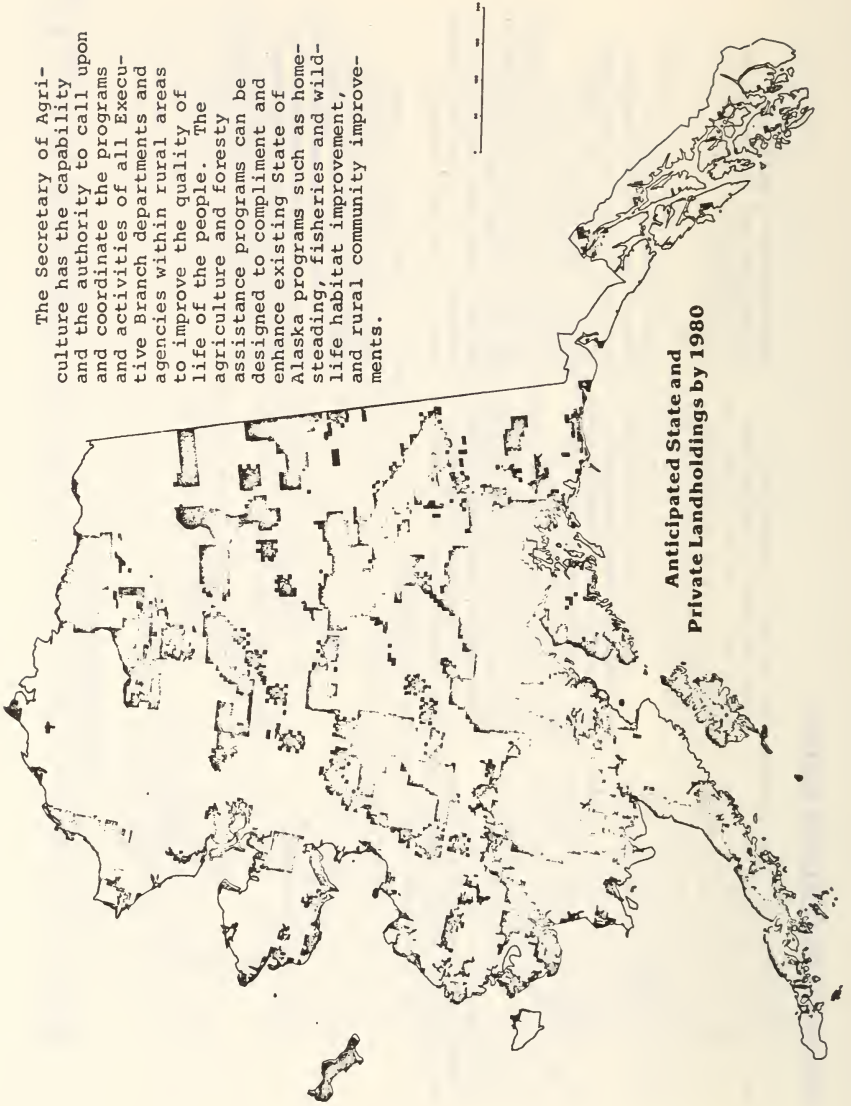
To meet the economic and social needs of rural Alaska one must address the question, "What must take place to promote self sufficiency in rural Alaska?" USDA has the capability under the Rural Development Act to answer this question.

LAND STATUS-ALASKA



ACREAGE IN MILLIONS

The Secretary of Agriculture has the capability and the authority to call upon and coordinate the programs and activities of all Executive Branch departments and agencies within rural areas to improve the quality of life of the people. The agriculture and forestry assistance programs can be designed to complement and enhance existing State of Alaska programs such as homesteading, fisheries and wildlife habitat improvement, and rural community improvements.



**Anticipated State and
Private Landholdings by 1980**

COOPERATIVE EXTENSION SERVICE

Thirty-six professionals provide the full range of program emphasis that is found elsewhere, but is modified to meet rural Alaska lifestyles. Statewide specialists have expertise in land use planning, engineering, nutrition, fisheries, business management and local government. Following are priority areas for Cooperative Extension programming in rural Alaska:

Local Government and

Community Resource Development:

Extension provides technical assistance in organization of governments to rural Alaskan communities. Following formation of local governments the on-going educational needs, in support of city officials, intensifies since many find themselves thrust into an almost alien social-political system. Establishment of local government requires delivery of community services to the residents, thus shifting the decision-making process from federal or state levels to the local level along with the need to generate revenue.

Resource Development:

Technologic assessment and information transfer is essential in order for the potential of Alaska's natural resources to be truly realized. Key to the development of forestry and agriculture is product processing and market development. The need for the State and the Natives to develop these renewable resources is intensifying due to present dependency on limited resources and future land tax liability.

Information Development:

As the prime educational arm of USDA, Cooperative Extension has major responsibility for development of educational programs. Historically printed materials have played a major role, but as audio-video techniques are developed and come to Alaska, Cooperative Extension has the opportunity to broaden its delivery capability.

Land and Resource Assessment and Planning: Land use planning and economic development are stressing current delivery capability. However, cooperative efforts are culminating in broad based recommendations which allow for staged resource development and recognition of resource limitations.

What the USDA is doing

SOIL CONSERVATION SERVICE

This agency assists Alaskans in the development, utilization, and conservation of their natural resources. Alaskans have the unique opportunity to use their resources in a safe and sound manner, since only a few land use commitments have been made.

Priority assistance is being provided through the statewide Alaska Soil Conservation District for: Alaskans with little resource development and marketing experiences. The State has assumed a vital role in assisting these people to make the transition from a very primitive subsistence type culture into the role as managers of extensive land and capital resources. In order to retain these lands and enable them to provide continual support for their people, an aggressive training program needs to be implemented.

To complement State programs, the USDA-Alaska program would be administered

by agency representatives from a common location. Co-located field offices would be established across the State. These offices would be staffed by professionals from the various USDA agencies depending upon the area's needs. Within rural communities would a number of locally hired paraprofessionals trained and supported by the field staff. An advisory group made up of rural residents, and representatives of State programs would give direction to USDA program efforts within the area through periodic meetings.

Resource Surveys, inventories and evaluations which include soils, snow, vegetation and water resources. Recently completed was an exploratory soil survey of Alaska and data interpretation which identifies 18.6 million acres of potential agricultural soils.

Assisting in land use planning for resource management. Utilizing satellite

imagery and new procedures to make a 4.5 million acre range and soil survey on private, state and federal lands on the Seward Peninsula. This data will be used in developing management plans with Native reindeer ranchers near Kotzebue.

Applying sound conservation measures which land managers can use in carrying out their resource plans. Technical assistance to some 700 farmers and homesteaders in planning and applying conservation practices on their land.

Cooperative studies and projects with other local, state and federal agencies. Cooperative snow survey data for water supply forecasting (for Anchorage) and flood prediction (for Fairbanks). Assisting in the development of the cooperative "Vegetative Guide for Alaska" for use statewide in revegetating disturbed areas.

This agency cooperates with University of Alaska scientists to combine scientific expertise in resolving problems. ARS provides knowledge and technology for efficient conservation production practices to meet the food and fiber needs of the American people. ARS also serves as the research base for the Soil Conservation Service. In Alaska, a little-researched state, one-fifth the size of the rest of the U.S. and with unique climate and soil conditions, ARS has only 5 scientists.

Some of the major research concerns in Alaska include:

High-latitude environmental effects on crops.

Alaska's northern latitude causes greatly different growing conditions for plants than occur in mid-temperate latitudes. This means that while plant culture is highly feasible on over 20 million acres of tillable soils with conducive climate, little research knowledge developed in southern latitudes is transferable

to Alaskan conditions. Plant germplasm adapted to northern latitude conditions can be identified and utilized for Alaska's needs.

Crop and pest management. Cultural practices developed for more southern latitudes transfer poorly to Alaska. Cultural and chemical weed control practices, as well as those for insects and diseases are being identified, but additional research tailored to specific Alaskan practices is needed. Research specialists have addressed, superficially, these problems.

Aquaculture. Alaska's inland waterways and its 33,000 miles of coastline contain a wide array of fish and shellfish. Enhanced, managed productivity of marine food products, and utilization of by-products, is essentially not addressed from an aquacultural standpoint at this time. Benefits to be derived from research in this area are believed to be enormous, and would be of direct benefit to

Alaska and the Nation. Hatchery development, nutritional concerns with accelerated food-chain enhancement, shellfish culture, salmon ranching, and related research are needed. Successful efforts elsewhere in exploiting food production from the marine environment can serve as the basis for initial steps.

Food Science and Nutrition. A growing concern nationally, over human nutrition also concerns ARS. But little or no work in Alaska where diets are unique has been done. Many Alaskan diets contain reindeer meat, wild game, and indigenous plant products. The benefits of this diet and the possible effects of dietary shifts need to be studied.

COOPERATIVE STATE RESEARCH SERVICE

The following priorities for applied research programs have been developed by CSRS. Research on physics and biology of soils as a basis for development of statewide wind and water erosion control in new and existing agricultural areas.

On-site crop testing is necessary because of the diversity of soils and climates. On-site testing identifies areas where agricultural resource development should become a major consideration. Initial trials for grain and forage production in 25 remote communities in the Kuskokwim and Yukon valleys have been conducted.

Long-term range management research for reindeer, wildlife, beef and sheep production is needed. Only limited data are available on range sites and condition classes. Virtually no information exists on long-term effects of range utilization. Effective herd management and wildlife management must be based on a better understanding of the feed-base capabilities of range lands.

Vegetative and soil analyses of caribou and reindeer range are being conducted in the Kotzebue area.

Economics of land use governing land use in Alaska is dependent upon resource utilization methods and the social and political institutions that impact resource decisions. Rural residents and policy makers need to understand the direct and indirect effects tax policies, restrictive covenants, zoning, development rights, and environmental controls have on resource development, enhancement and conservation. CSRS findings have been used by the State, the Land Use Planning Commission and other federal and private entities.

AGRICULTURE STABILIZATION AND CONSERVATION SERVICE

ASCS has 3 programs significant to Alaska -- the Agricultural Conservation Program, the Forest Incentive Program and the Wool and Mohair Program.

The Agricultural Conservation Program. ACP has the responsibility of developing, administering and cost-sharing on conservation practices for privately owned and leased lands, concentrating on conservation practices associated with the development of agricultural lands. As the tempo of development quickens, there will be a corresponding need for program modification and increased cost-sharing. Approximately \$58,000 was paid in 1976 under the ACP. The cost-sharing opportunities for Alaska Natives in an area that will increase in significance as decisions are made on their 44 million acres is great.

The Forest Incentive Program is being used by landowners who have potential for sustained income from forest resources. Current emphasis is on selective harvest, tree planting, thinning, pruning or releasing desirable seedlings and young trees.

The Wool and Mohair Program is of interest primarily to ranchers on the Aleutian Chain. There are only a small number of participants, but it is expected to increase as agriculture develops.

FmHA administers programs designed to aid in the development of community facilities, business and industry, rural housing and agri-aqua-culture.

Community Facilities:

A major problem is a lack of adequate community facilities, including sewer and water systems, streets, community buildings, medical facilities and industrial parks. FmHA has loan and grant monies and experienced people who can help communities plan and carry out needed projects. Only after the installation of needed utilities and services can the development of industry and housing take place.

Business and Industry:

This program is designed to guarantee loans made by local lenders for development of business and industry enterprises. The program's objective is to create local employment. This program can play an important part in solving Alaska's extremely high unemployment problem.

Rural Housing: This is the largest FmHA volume program in Alaska despite the fact that it is severely hampered by extremely high building costs and inadequate building sites. There is an increasing need to help rural families gain safe, sanitary, decent housing.

Agri-aqua-culture: FmHA has a well established and supervised lending program for agricultural programs and a commitment to helping in the area of aquaculture, one of Alaska's most complex and interesting challenges.

OTHER USDA AGENCIES

Three major priority services are provided in Alaska: management of 2 large National Forests, research programs and technical assistance for management and protection of nonfederal forest/range lands.

National Forests in Alaska provide a wide variety of land use, including recreation, wildlife, wood, water and range. The Forest Service works closely with Alaska Department of Fish and Game to protect and enhance wildlife habitat and improve fisheries. The newly established Young Adult Conservation Corp will employ nearly 600 young people by the end of 1978. In addition, \$2.5 million was returned to the State of Alaska from timber receipts in 1977.

Research programs are aimed at identifying and finding solutions to problems unique to northern latitude forests. The resulting scientific information assists in developing efficient and environmentally sound land management prac-

tices. Research programs involve cooperative projects with universities and their associated Agriculture Experiment Stations as well as State of Alaska agencies responsible for forestry, wildlife and fisheries in addition to private industry.

State and Private Forestry programs encourage management and protection of nonfederal forest lands. Technical and financial assistance is coordinated through Alaska's State Forester. Programs include assistance in timber inventory, survey and control of insect and disease problems, state-wide fire plans, sawmill improvement, logging techniques and marketing. To meet future needs, programs include development of improved seed sources, a state tree nursery, forestry incentives, management and financial assistance to forest landowners and planning for land and water resources.

Several USDA agencies have only limited programs established in Alaska, including the Statistical Reporting Service, Animal and Plant Health Inspection Service and Rural Electrification Association (REA). In the latter case, most Alaskans who are served by electric power, are receiving it through REA projects. The need to devise methods and to provide electric power to most remaining rural Alaska communities is a high priority.

These agencies can provide vital services to rural Alaskans and, in most cases, programs need to be expanded. Two agencies, the Food and Nutrition Service and Economic Research Service, are not presently in Alaska, and need to be immediately established.

What the USDA can do

PLANNING

Knowledge of land and water resources is basic to understanding how the land can best serve rural Alaskans.

USDA agencies have the legislative direction and ability to provide technical assistance to complement and enhance many State rural programs. The assistance can be augmented through cooperative efforts to assist State programs in meeting overwhelming anticipated needs for inventory and evaluation of resources of millions of acres of private and state lands.

Broad cooperative programs integrating human needs and potential of lands, in all ownerships are already underway in River Basin Studies and development of Forest Service Area Guides. Much more needs to be done -- and at an accelerated rate -- if Alaska is to avoid the environmental and economic pitfalls of America's past.

Alaska has the unique advantage of being able to

perform sound planning prior to major land use decisions. Early identification of hazards, sensitive areas, critical habitats and other problem areas is key to the protection of environmental quality.

Congressional direction to the Secretary of Agriculture for coordination of Federal rural activities indicates that USDA should take leadership in cooperative land use planning throughout rural Alaska.

RESEARCH

Resource research activities in Alaska are not adequate to meet the needs of the new resource managers created by the Alaska Statehood Act and the Alaska Native Claims Settlement Act. The majority of current research programs were designed to serve more populated areas, and have essentially ignored the vast rural hinterland. Only recently have reconnaissance soil information, widely

scattered crop test plots and crop prediction sites, and experimental forests been developed in central Alaska.

However, an experimental village gardening program of 20 years ago, and the past history of agriculture research and reindeer herding trials all have shown a much higher level of self-sufficiency is possible in meeting rural Alaska's food needs.

Acquisition of a data base can be accompanied through conventional means by bolstering present research programs. But delivery systems and application of resource management research findings that fit the social and economic realities of rural Alaska must be innovative, and may call for a revised organization must be capable of meshing forestry, agriculture, wildlife habitat management, and other resource management with the subsistence cultures of the remote communities.

Some basic research needs can be met by laboratories outside the State. But, because of remoteness, long photoperiods, and climatic, geographic, and economic factors, research for Alaskan rural development must be site specific. Cooperative efforts between USDA and the State can facilitate phasing in this effort over the next few years. USDA's staffing and facilities will be bolstered as required to meet Alaska's developmental needs. Research

efforts will need to concentrate on such problems as permafrost soils, extreme photoperiod effects on plants, nutritive quality of unique Alaskan diets, and aquaculture. These efforts will help bring Alaska to a position of greater scientific knowledge for development of sound economic and community growth.

Rural Need	How U.S.D.A. Can Help	Rural Need	How U.S.D.A. Can Help
INVENTORY	Landform	BASIC RESEARCH	Soil and water
	Soils		Wildlife habitat
	Vegetation		Silviculture
	Water		Range management
EVALUATION	Land Tenure and Use		Animal husbandry
	Scenic Quality		Domestic
	Suitability and Limitations		Nondomestic
	Socio-Economic Assessment		Fire management
PLANNING	Multi-Resource Interaction		Marketing
	Agriculture		Pest management
	Forestry		Agricultural waste management
	Recreation/Tourism		Hydrologic impact--basic data
	Wilderness		Social impacts
	Wildlife Habitat		Mining rehabilitation
	Fish Habitat		Plant materials
	Multiple Use/Prime Use		Nutritional data
	Community Development		Recreation
	Minerals		Impacts of management activities
	Energy		
	Range Management		

MANAGEMENT TRAINING ASSISTANCE

Extensive management training assistance is needed by rural Alaskan citizens. Forty-four million acres containing some of the highest value resources in the State will soon be owned by rural Alaskans with little resource development and marketing. The State has assumed a vital role in assisting these people to make the transition from a very primitive subsistence type culture into the role as managers of extensive land and capital resources. In order to retain these lands and enable them to provide continual support for their people, an aggressive training program needs to be implemented.

Agencies of USDA are capable of delivering many types of management training. New manpower programs such as Youth Conservation Corps and the Young Adult Conservation Corps can be extended into rural Alaska especially where new National Forests are located.

An expanded USDA program in Alaska could provide paraprofessionals -- that is, trained local Alaskans serving under the guidance

of professionals (i.e., the USDA Expanded Food Nutrition Program.) The paraprofessionals could provide a wide variety of technical services such as soil management, timber inventory, garden management, small sawmill operation, cabin construction skills, inventory of community needs, home budget planning, environmental education and youth programs.

Support of such a system would require an increase in professional staff and an improved delivery system.

Rural Need How U.S.D.A. Can Help

MANAGEMENT

Local government
Resource management
Agriculture (crop
and animal)

TRAINING

ASSISTANCE

Forestry
Fisheries (aquaculture)
Recreation
Range management
Land
Water
Wildlife habitat
Soils
Business management
Nutrition education
Marketing education
Arts and crafts
Planning
Home management
Youth education
Timber processing
Construction
Small engine repair

COMMUNITY SERVICES

With the passage of ANCSA, rural Alaskan communities became full participating communities within the U. S. socio-political system. In addition, the Indian Self Determination Act has emphasized the role of self governance for a significant portion of rural Alaska's population.

These Congressional actions have satisfied a long recognized need for equal stature of rural Alaskans. But the actions have come at a time when the affected people and communities are in a transition from a semi-nomadic subsistence economy, into

Alaska's changing patterns of landownership and economic growth along with pending social changes point out a need for an intensified effort to bring about self sufficiency to rural communities.

A number of programs conducted by USDA, in cooperation with State and local governments, are available to provide efficient, direct, and appropriate service

benefits to rural communities. Rural community service programs can be integrated into existing local government infrastructures, through cooperative arrangements, thus making the fullest use of local skills and facilities. In addition the USDA can provide technical assistance in government organization to rural Alaskan communities as they change from village council governance to State sanctioned city governments. Since 1969, 107 rural communities have become cities, with some 130 communities still to form a local government unit.

Rural Need

How U.S.D.A. Can Help

COMMUNITY SERVICES

Water supply
Electricity
Telephone
Sanitation--solid and liquid waste
Housing
Loan guarantees
Business development and marketing
Technical assistance
Education
Transportation
Resource development
Law enforcement
Fire protection

USDA-ALASKA PROGRAM

To meet the needs of rural Alaska -- where 150 million acres have suddenly been converted to ownership, USDA would take the opportunity to change its delivery systems to meet the challenge. All programs would be managed and coordinated to provide real service to the rural people, and the vast rural resources of the State. All programs including research, technical service, finance and economics service, information and education would be coordinated and directed within the State of Alaska.

To complement State programs, the USDA-Alaska program would be administered by agency representatives from a common location. Co-located field offices would be established across the State. These offices would be staffed by professionals from the various USDA agencies depending upon the area's needs. Within each rural

communities would a number of locally hired paraprofessionals trained and supported by the field staff. An advisory group made up of rural residents, and representatives of State programs would give direction to USDA program efforts within the area through periodic meetings.

Such a program obviously cannot come about overnight. However, it is essential that a decision be made now to phase into such a program over the next three to five years. Planning and research aspects are the highest priority for the immediate future, recognizing that the program is basically long-range and may not reach its full potential for 10 to 15 years.

NATIONAL NEEDS

The nation has been experiencing profound changes in realizing our natural resources are limited. The oil embargo of 1973, shortages of natural gas in the winters of 1975 and 1976, limitations on use of electricity in hot summer months, and severe water shortages, all serve to remind us of the need to determine the availability of our existing natural resources.

At the same time we need to insure availability of wilderness for today's and future generations. These factors, combined with the need to maintain and enhance the quality of our environment and our cultural heritage, pose a complex and changing pattern of land uses.

These complex, changing land uses underscore the need for a balanced program in Alaska -- without over-emphasizing any one land use. We need flexible land use direction which meets current needs -- yet capable of changing to meet future public needs.

Most important, is that Federal lands intermingled and adjacent to those of rural Alaskans be managed in ways that complement and support their efforts.

How U.S.D.A. Can Help

National Needs

MINERALS

Land base
Technical assistance
Education

ENERGY

Land base
Financial assistance
Technical assistance
Education

WILDLIFE

Land base
Habitat management
Cooperative management
Education

WATER

Land base
Technical assistance
Financial assistance
Education

FOOD & FIBER

Technical assistance
Education
Financial assistance
Land base

WILDERNESS

Land base
Management experience

RECREATION

Technical assistance
Land base

NEW NATIONAL FORESTS

The initiative for new National Forests in Alaska is designed to fit this concept. National Forests have been proposed for those areas of high multiple values which can complement the needs of the rural people.

National Forest proposals are based on five years of study which began in April 1972. Criteria used were:

- (1) the areas should have nationally significant values.
- (2) the areas should offer a range of resource uses.
- (3) the areas should be manageable units, based on watersheds, ecological relationships, or existing or proposed transportation systems. Areas meeting these criteria, if retained in public ownership could be better managed under multiple use principles than under a system of prime or limited use.

The proposals also were tested against the objectives of the Alaska Native Claims Settlement Act. These objectives include:

- *Environmental conservation

- *Community, industry and user stability and growth
- *Regional development
- *Coordinated planning between Federal, State and Native groups
- *Protection of public values
- *Determination of management, land use and ownership distribution
- *Identification and protection of public access needs.

You will note that none of these criteria include a requirement that a significant timber resource be present. Although much of the land is forested, less than 15% could be considered commercial and much of this would be marginal at this time due to lack of access and markets.

National Forests are often mistakenly associated only with the management of the timber resource. However, the agency's total mission -- clearly spelled out in legislation -- encompasses the sustained yield management of all the renewable natural resources. This has been confirmed by

Congress through the Multiple Use-Sustained Yield Act of 1960 and more recently in the Resource Planning Act and the National Forest Management Act. Thus, the presence or absence of significant commercial forests does not, in itself, determine if an area is a candidate for National Forest status.

The Forest Service's study team originally proposed 42.6 million acres of lands best suited for multiple use management under the above criteria.

Since that time and in keeping with the Department's concern for rural assistance and protection of agricultural values we have added 3.5 million acres in the Yukon Flats. We have also modified some proposals keeping in mind these points:

- (1) Where large National Parks have been proposed, we have suggested National Forests between the Parks and the communities. This will leave the adjoining lands open to hunting, fishing, and trapping, local use of

households, fuelwood and construction material, available for community recreation and other uses.

(2) Where agricultural lands are located adjacent to key waterfowl areas, we have suggested National Forests to protect the wildlife values while permitting other uses. Important here is a new initiative which would permit agricultural leasing in the future for food and grain production.

(3) It is desirable to encourage cooperative management programs between adjacent Federal, State and private landowners. Management of fish and wildlife resources is an excellent example. The Forest Service has these authorities as well as an excellent national record of cooperation with the National Park Service, Fish and Wildlife Service and the Bureau of Land Management, as well as the Alaska Department of Fish and Game.

One of the strengths of the Forest Service and the Department is its land planning capabilities -- and its high degree of public

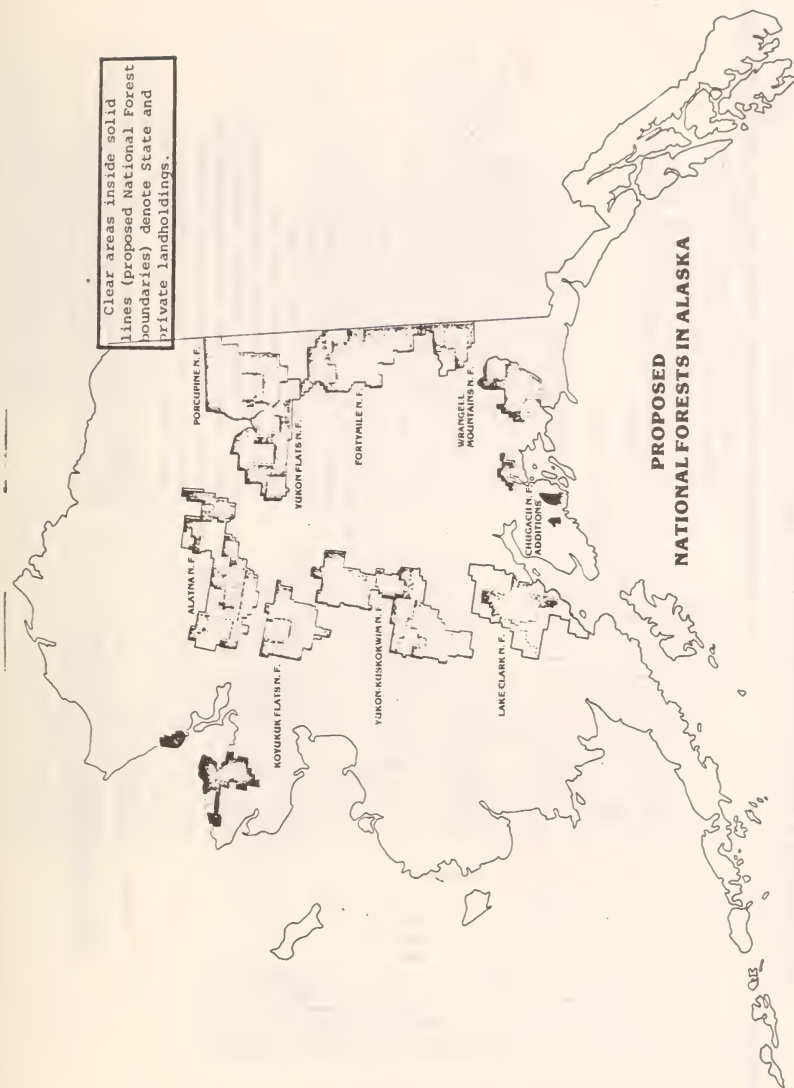
involvement and participation in the planning process. National needs for minerals and energy, wildlife, wilderness, and other values, and strong support for rural self-sufficiency can be accommodated through USDA-Forest Service planning processes. A start has already been made.

The USDA Alaska initiative will result in a federal estate in Alaska balanced between Parks, Refuges and Forests, with a majority of federal lands in multiple use management to serve the needs of rural Alaskans. (BLM remains the major land holder.)

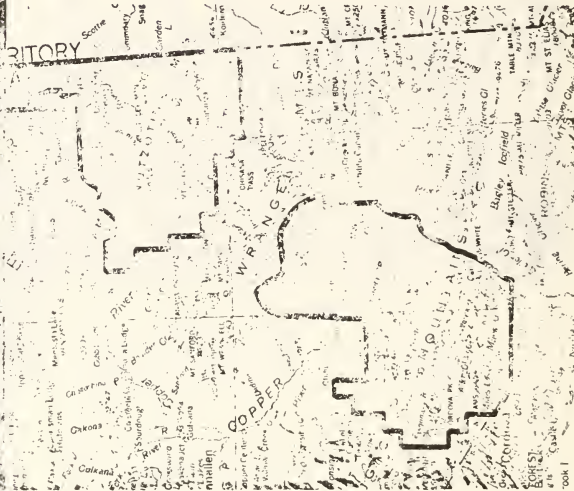
Alaska's primitive nature will be protected, but self-sufficiency of rural Alaskans will be promoted. The Department of Agriculture's mandate for leadership in rural America will be realized in Alaska.

Alaska is today's biggest challenge. The Department of Agriculture is best equipped to meet that challenge through its programs for people.

Clear areas inside solid lines (proposed National Forest boundaries) denote State and private landholdings.



WRANGELL MOUNTAINS NATIONAL FOREST



glacier and river systems and accessible forested valleys. The National Forest makes rich mineral deposits, hunting and r State control, and a wide variety of complementary recreation experiences available.

Resource Values:

Human and Community: The surrounding area falls into three Native Regions: Chugach Natives, Inc., Ahna Inc., and Doyon, Ltd. Homesteads are scattered through the Copper River Valley and along roads, highways, and rivers. Four Native villages and the communities of Chitina and McCarthy are located within or adjacent to the proposal. Ahna, the principal Native Regional Corporation, is exploring commercial enterprises in the fields of tourism, watershed rehabilitation, electrical contracting, and civil engineering. Activities permitted on National Forest lands would help to support these and other private endeavors increasing employment and cash incomes. Good access exists via major highways and secondary roads. The Copper River Highway, if constructed, would provide access from Cordova across National Forest lands.

Total Acreage: 5.5 million acres

General Description: This proposal includes rugged mountain ranges, broad

Wildlife and Fish Habitat: The proposed National Forest would retain nearly half of the Dall sheep hunting in the Wrangell Mountains complex under State

hunting laws while managing the habitat. The area includes the upper extension of the waterfowl-rich Copper River Delta. Other wildlife valuable for viewing or hunting include trumpeter swans, grizzly bear, Ptarmigan, moose and caribou. The Copper River and its tributaries support an important salmon resource. Lakes such as Tebay provide excellent sport fishing.

Outdoor Recreation and Wilderness: Accessible by road and air, this proposal provides a wide spectrum of outdoor recreation opportunities ranging from commercial accommodations on adjacent Ahnna Native lands to hunting, fishing and mountaineering in wilderness country. Through cooperative planning the greatest diversity of recreation facilities can be provided on National Forest lands and, at the same time, serve as a buffer to the National Park. Special interest values include the historic Copper and Northwestern Railway, the Kennecott Mine, and the proposed Bremner Wild River.

Forests: The principal values of the 1.3 million acres of forests lie in watershed cover, wildlife habitat and scenery. However, the 170,000 acres containing commercial timber can continue to provide wood products and firewood for local use. The principal species are white and black spruce, paper birch and aspen, and cottonwood.

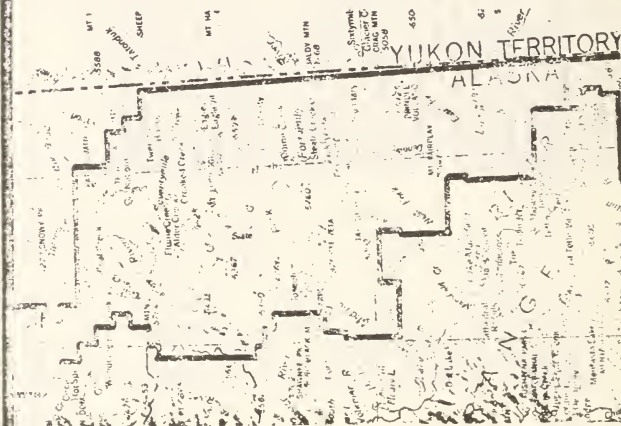
Minerals and Energy: The copper potential is very high. The northeastern unit of the Forest contains an estimated 1.19 billion tons of 0.3% copper porphyries with associated molybdenum. Additional lodes occur in the southwestern unit. There are 2 million acres of "highly favorable" and 1.6 million acres of "favorable" mineral potential. Uranium and geothermal potential also occur. Mineral resources in the proposed Wrangell Mountains National Forest would be available for exploration and recovery.

Water and Hydroelectric Power: The primary watershed values are for habitat and scenery. The potential Wood Canyon reservoir could produce 21.7 billion kilowatt hours annually.

Range and Agriculture: Recreation pack and saddle stock grazing on a limited forage resource (207,000 acres available) helps support local guiding enterprises. The area is climatically unsuited to extensive agriculture though some carefully tended gardens have been successful.



FORTYMILE NATIONAL FOREST



Total Acreage: 3.8 million acres

General Description: Interspersed with regional deficiency lands, lands selected by Eagle Village, and d-1

lands, the proposal is in the Yukon-Tanana Highlands. Broad plateaus, extensive forests and tundra clad hills and mountains with peaks of 5000- 6000 feet are dissected by the Yukon, Charley, Fortymile and Ladue rivers and their tributaries. The dominant vegetation is typical of the northern coniferous and alpine tundra biomes.

Resource Values:

Human and Community: Eagle, the major town within the proposal, is composed of two communities. Eagle City is predominantly non-Native, and Eagle village is predominantly Native. Approximately 6000 people in the region will be affected by land use policies. A combination of wildlife, recreation, minerals and wood products use will provide the best opportunity to improve socioeconomic conditions. Access is good via the Alaska Highway and the Taylor Highway (to Dawson and Eagle). The Steese Highway connects Fairbanks with Circle. The Yukon River is important for water transport. Air transportation is a major means of travel to the area and its communities.

Wildlife and Fish Habitat: Extensive caribou habitat exists in the mountains. River valleys support moose, fur and small game providing a significant source of meat, food, and recreation. Small populations of bali sheep occur

on the Charley River and Glacier Mountain. Bear are fairly common. Grayling, northern pike and salmon meet both subsistence and recreation needs of local residents and visitors. Bluffs along the Yukon, Charley and Fortymile rivers provide nesting habitat for the peregrine falcon and other cliffnesters.

Outdoor Recreation and Wilderness: Recreation opportunities are abundant and keyed to accessibility. The existing road network provides recreationists with opportunities for such activities as backpacking, river travel, fishing, hunting, and historic viewing. The 160 miles of the Fortymile River system combined with the Charley and Yukon rivers provide exceptional river travel opportunities. As recreation demands increase opportunities for development of recreational facilities and services by local business and communities will be important to the area's economy.

Forests: Much of the forest cover is primarily scattered spruce, birch and aspen stands and of small size. Fire is an important ecological factor. Principal values are for watershed protection, wildlife habitat and local uses such as fuelwood, houselogs, lumber, poles and mine timbers. Forest acreage is estimated at 2.7 million and includes a minimum of 300,000 acres of commercial forest lands.

Minerals and Energy: "Highly favorable" for mineral potential; gold, copper, tungsten, lead, asbestos, iron, hematite, phosphates and other minerals occur in this area and potential exists for uranium development. Importance for oil and gas development is "moderate to low".

Water and Hydroelectric Power: The water resources comprise a major habitat component, supporting substantial fish and wildlife populations and providing exceptional recreation opportunities. Power sites have been identified on the Yukon River at Woodchopper (14.2 million megawatts) and Fortymile River near the Canadian border.

Range and Agriculture: Agriculture is presently limited to a few garden plots. Upland soils more than 50% suitable for farming, and lowland soils 25-50% suitable are found from the lower Charley to Circle. Domestic range values are minimal due to climatic restraints.



PORCUPINE NATIONAL FOREST



a regionally and nationally significant resource base.

Resource Values:

Human and Community: Fort Yukon (population 600) and Chalkyitsik (70) are the principal communities on or near the proposal, however, people from other villages on the Yukon Flats occasionally use the area. Populations are increasing and low income and unemployment are problems. Subsistence use of resources to supplement incomes is still a necessity. The proper management of wildlife, wood products, recreational development, and the development of oil and gas resources can contribute to and assist in stabilizing the area's economy.

Wildlife and Fish Habitat: A wide range of habitat supports most of Alaska's interior fish and game species. Moose, bear, furbearers, salmon and a variety of sportfish are of combined importance for recreation and subsistence purposes but no major concentrations occur. Of prime importance, however, is 900,000 acres of wetlands supporting 20-25% of the Yukon Flats waterfowl production which is nationally significant.

Outdoor Recreation and Wilderness: Accessible only by air and water and essentially wilderness in character,

Total Acreage: 5.5 million acres

General Description: This 5.5 million acre proposal comprised of extensive lowlands, plateaus, and low hills lies generally east of Fort Yukon. Habitat for fish and wildlife including abundant wetlands for waterfowl, commercially valuable timber, hunting, fishing and water oriented recreation opportunities as well as oil and gas potential comprise

this remote area is lightly used. Sportfishing, hunting and river travel by canoe and boat comprise current uses. There are also opportunities for nature study and photography. The Sheenjek Wild River and Porcupine Scenic River proposals enhance future recreation potential. Opportunities for catering to sportsmen and recreationists will increase as access to Fort Yukon or Old Crow improves.

Forests: There are 3.8 million acres of forested land providing watershed protection, wildlife habitat, recreation values and wood products for local use. Additionally about 360,000 acres of commercial forest lands combined with timber from adjacent Native land could provide the basis for a sustained production of wood products and a valuable supplement to the local economy.

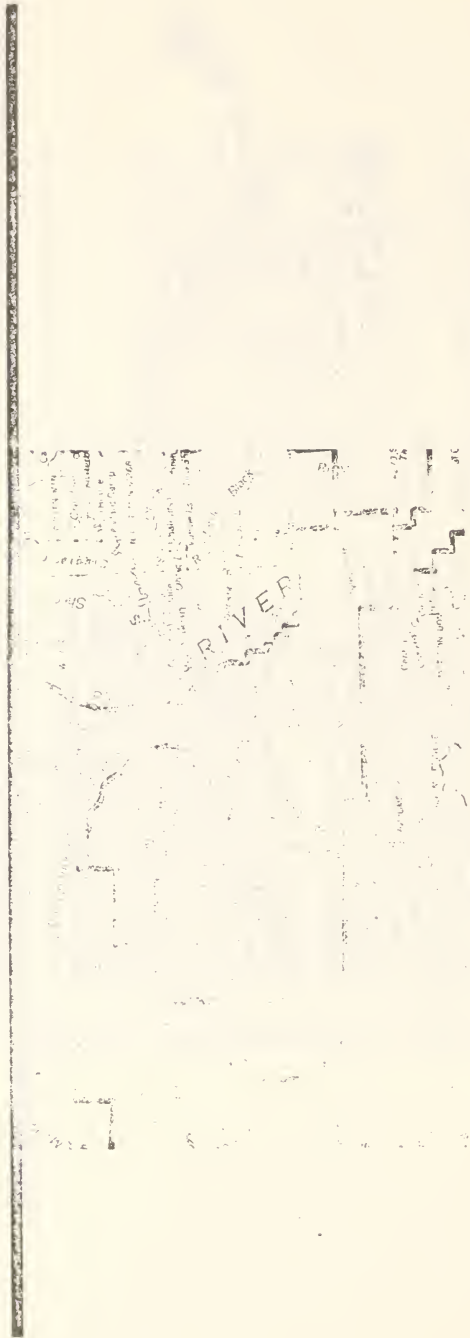
Minerals and Energy: The Yukon and Kandik basins are potential oil and gas reserves of national significance with speculative recoverable oil estimated at 1.7 billion barrels and gas at 1.3 billion cubic feet. Almost 2 million acres "highly favorable" for minerals occur. Uranium potential occurs on 1.2 million acres. Should discovery and subsequent development occur, the local and national impacts would be very significant.

Range and Agriculture: In the Yukon and Porcupine river valleys, there are

1.8 million acres of farmable soils and 3.3 million acres of potential rangeland. Should the need arise, acreage would be available through lease, land exchange or special use permits for farming and grazing. During the interim, existing forage is utilized by wildlife and home gardening practiced. With changes in technology, economics, world demands and transportation, farming could occur and would probably be done initially on privately owned Native lands.



YUKON FLATS NATIONAL FOREST



Total Acreage: 3.59 million acres

General Description: This is an area of extensive lowlands and low hills.

Numerous lakes, ponds and wetlands combine to form abundant fish and wildlife habitat.

Resource Values: .

Human and Community: Three Native villages are within this area and two adjoin it. Subsistence use of resources is important, particularly to those

unemployed and with low incomes. Corridors for oil, gas and other purposes have been proposed for 160 miles through this area including a route between Bettles and Kobuk. Currently, air travel is the only practical means of year around access.

Wildlife and Fish Habitat: The area's primary value is wetland habitat which supports densities of 100+ birds per square mile. It contributes 23% of the 2.1 million ducks and geese in the fall flight. Adjacent Native lands

have 52% of the prime habitat thus underscoring the need for cooperative management programs. A wide range of habitat supports moose, bear, furbearers, salmon and sportfish which are important for local use. However, no major concentrations of these species occur.

Outdoor Recreation and Wilderness: Scenic values are low to moderate, however, it is essentially wilderness in character. Recreation opportunities are currently limited by accessibility. The Birch and Beaver rivers are potential candidates for the Wild and Scenic River System. Fly-in or river travel for hunting and fishing are important recreation uses. If access improves, opportunities can occur for local communities to develop facilities and services to accommodate visiting recreationists.

Forests: There are 3.4 million acres of forested lands providing watershed protection, wildlife habitat, scenic values and wood for local use. There is potential for combining commercial timber on these lands with commercial forests on adjoining private lands to develop a wood products industry.

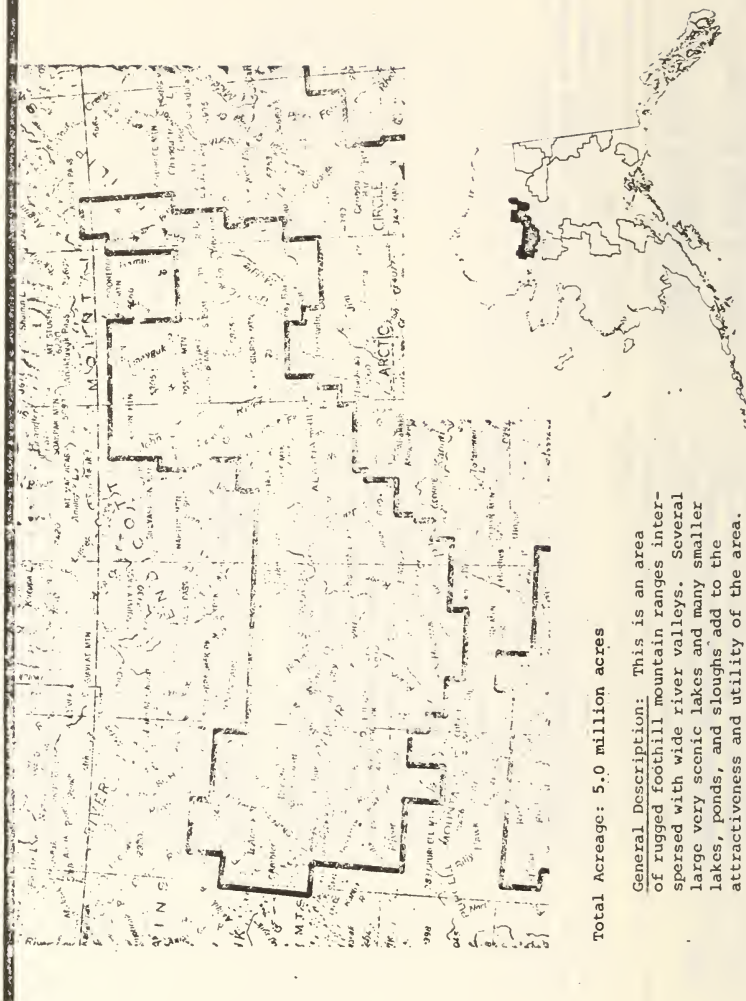
Minerals and Energy: Exploration to date identifies 1.7 million acres with "favorable" mineral potential, and 1.9 million acres with Uranium potential. The Rampart dam proposal for hydro-

electric power, 34.2 million megawatt hours, is within this forest.

Range and Agriculture: This unit has 2.09 million acres of soils suitable for farming. As the need develops, this land would be made available on a leasing basis. Land suitable for range totals 2.89 million acres and would be also available as needed under special use permits.



ALATNA NATIONAL FOREST



Total Acreage: 5.0 million acres

General Description: This is an area of rugged foothill mountain ranges interspersed with wide river valleys. Several large very scenic lakes and many smaller lakes, ponds, and sloughs add to the attractiveness and utility of the area.

Resource Values:

Human and Community: Five area villages still partially depend on the various natural resources and are undergoing the gradual transition to a cash economy. These villages will find it necessary to develop management strategies and programs for their newly acquired lands to facilitate this adjustment. Decisions relative to the development and use of the resources and a transportation system will be basic considerations along with the cooperation and coordination afforded by agencies with adjoining ownerships.

Wildlife and Fish Habitat: The diversity of habitat ranging from lowland river bottoms to rugged foothills, high plateaus and mountains supports most of the interior Arctic wildlife and fish species. With the exception of the Arctic caribou herd which has recently suffered a drastic decline, most populations provide high quality recreational hunting, fishing, and viewing in addition to contributing to the subsistence needs of area residents. Moose and caribou are of primary importance as are furbearers and small game. Fisheries values, both for subsistence and recreation are significant. Arctic char, grayling, pike and lake trout are primarily taken by sport fisherman. These species plus salmon, burbot, whitefish and lesser species are important for local use.

Outdoor Recreation and Wilderness:

Recreation values are outstanding with exceptional opportunity for backpacking, river and lake travel and camping. Wildlife observation, hunting and fishing in remote wilderness type country are primary considerations. The State wildlife management plans for the area include opportunities for hunting under esthetic conditions and obtaining trophy animals. The Walker Lake and other lake areas adjacent to the Gates of the Arctic National Park proposal would provide excellent staging areas for people entering the primarily wilderness Park. In the event that surface access is developed, this area would act as a buffer and absorb much of the impact of tourists and other recreationists.

Forests: Much of the area is forested and includes some white spruce with commercial values. The best stands are found along the larger river valleys such as the Kobuk and Koyukuk. These stands could support a local timber economy providing lumber for domestic and small commercial uses. Open growing black spruce forests of lesser quality and importance are also found, generally on north slopes and on poorly drained sites. In addition to meeting local needs for house logs, domestic construction and a variety of subsistence purposes, forested lands are an important habi-

tat element for wildlife providing both food and cover for many species.

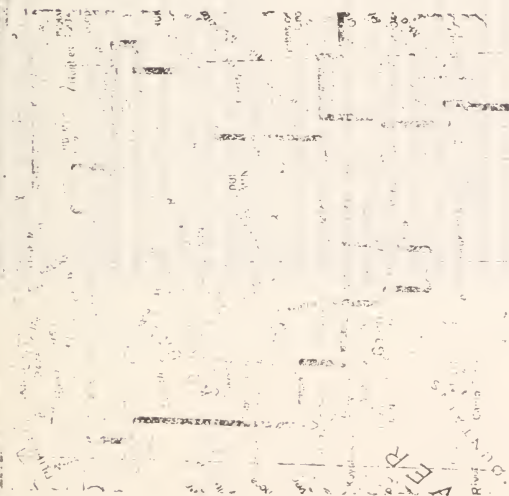
Minerals and Energy: The southern portion of the area is designated "favorable" for metallic mineral deposits and the northern portion is "highly favorable". In the upper Kobuk area, the Baird Mountains have high mineral potential. At Bornite, at least 100 million tons of copper ore containing 1.2 to 1.6% copper are available. Gold, primarily placer deposits, occur in the vicinity of Hog River, west of Hughes. Some asbestos minerals in the Cosmos Hills on the upper Kobuk have economic potential. Oil and gas development potential of moderate to low importance occurs along the middle Kobuk Valley below Shungnak.

Water and Hydroelectric Power: The two major drainage systems are the Upper Koyukuk and Kobuk rivers and their tributaries. Many lakes, sloughs

and ponds occur. In addition to serving the domestic needs of area residents, water is a basic habitat component vital to fish and wildlife populations. The river systems also provide a transportation network for water travel in the summer, including barge service as far as Ambler, and snow travel in the winter. A power site has been inventoried at the "Lower Gorge" on the upper Kobuk which could provide 110 kilowatt-hours of firm energy annually. No development plan exists for this project.

Range and Agriculture: The agricultural potential is limited to areas along the Koyukuk and middle Koyukuk rivers which are classified as climatically marginal. Much of the area is caribou range and thus has potential for reindeer range. There is little potential for other domestic range use.

KOYUKUK FLATS NATIONAL FOREST



Total Acreage: 3.9 million acres

General Description: Lying across the Kookrires-Hodzana Highlands on the north and generally bordered by the Yukon River to the south, this area is proposed as the Koyukuk Flats National Forest. This unit contains extensive forested areas that include wetlands and other typical subarctic ecosystems. Characterized by winters

of extended subzero temperatures and summers in the mid-70's or above, this area experiences a brief, but productive vegetative growth cycle. Dry summers foster wildfires which are an important factor in the area's basic ecology. Seven Native villages within or close to the area depend on the forest, water, fish and wildlife resources for a significant portion of their livelihood and to supplement their cash income.

Resource Values:

Human and Community: The regional population is estimated at 2,500 mostly of Athabaskan Indian descent. Most of the population is centered in river villages. The majority of the people are economically and culturally oriented to the same subsistence life as their ancestors. Fish, waterfowl and moose are key subsistence elements. Wood products are equally important for fuel and housing. The majority of employment is provided by government activities including two Air Force stations and a National Weather Service Station. Opportunities for economic improvement are closely linked to development and use of natural resources. Wildlife and timber resources on adjacent Native lands offer the most promising benefits.

Wildlife and Fish Habitat: Wildlife comprises one of the major elements of the Forest's resource base. Seven villages depend on the area's wildlife populations for subsistence. The Yukon-Koyukuk wetlands are good breeding habitat with population densities of 32 waterfowl per square mile, and contribute up to 900,000 ducks and geese annually to the flyways. Salmon are taken primarily for local consumption. Currently, there is little demand for sport fisheries, however, these species are used for food.

Although decreasing in importance, trapping continues to contribute to local cash incomes. Moose are generally plentiful throughout the unit. Bear and some caribou occur.

Outdoor Recreation and Wilderness: The Koyukuk National Forest offers a wide variety of outdoor recreation opportunities ranging from riverboating and canoeing to commercial lodge accommodations at hot springs on adjacent Native land. Through cooperative management, diverse recreation facilities, public cabins, guided river float trips, canoe trails, and lodges -- can be provided. Special interest values include the 16,000 acre Ogahabara Sand Dunes. Presently accessible only by air and water and essentially wilderness in character, this proposal is lightly used.

Forests: Most of the area is forested with the better stands of timber found in the lowlands along waterways. Commercial timber occurs on 300,000 acres with a growth capability of over 25 million board feet annually on a sustained yield basis. The principal tree species include white spruce, balsam poplar, birch, aspen, and black spruce. Small sawmills located in outlying villages presently manufacture houselogs for local use. The forest is also used by local residents as a source of firewood. The total timber

volume on commercial forest lands is estimated at 1 billion board feet and would provide a substantial contribution of renewable raw materials for the economic base of local villages.

Minerals and Energy: The Koyukuk area has not been intensively explored. Only those areas thought to be favorable for mineral and energy occurrence can be indicated. Some leasing activity, and geophysical explorations by oil companies and the U.S. Geological Survey have taken place. The thick deposits of alluvium along the Koyukuk River have long been regarded as a petroleum province. The uplands appear to have low mineral potential. Geothermal springs occur and could have value as a power source at some future time. Gold mining has a long history with recent gold dredging taking place near Hughes. There are over 300 mining claims located in the general area of the Forest with close to 70 still actively held.

Range and Agriculture: There are 413,000 acres of farmable soils and 1 million acres of potential grazing land. These areas are located in the Yukon and Koyukuk river valleys. In addition about 340,000 acres of soils capable of supporting agriculture but in a climatically marginal zone are located on the Koyukuk River, south of Hughes. In general, agricul-

tural opportunities now and in the near future appear limited. There is no domestic livestock grazing, although the lowlands support grass stands.

Land and Water: The water resource is very important with three major tributaries joining the Yukon River in close proximity to the Forest. Permafrost has a widespread effect, restricting subsurface drainage and ground water recharge in the lowlands. Soils vary from poorly drained silt loams to well drained silt and gravelly loams over bedrock. Use of the water resource is minimal, mainly related to river transportation and local village use. Water is vital to the area's fish and wildlife. The area has a significant history of wildfires. Extensive areas have burned over the years and only a few timber stands exceed 200 years.

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1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) tend to zero as $t \rightarrow \infty$ if and only if the matrix A is Hurwitz. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as $t \rightarrow \infty$ if and only if the matrix A is not Hurwitz. The third part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as $t \rightarrow \infty$ if and only if the matrix A is not Hurwitz.

General Description: Bounded on the north by the Yukon River, this proposed area spans south across the Kuskokwim Mountains to the foothills of the Alaska Range. The unit includes the majority of the Noyah River and upper of the Noyah River drainages. The extensive evergreen/deciduous forests and wetlands provide abundant habitat for waterfowl and wildlife.

Resource Values:

Human and Community: Eight Native villages are closely associated with this proposal. The Yukon River navigable corridor runs for 175 miles through the proposal.

Wildlife and Fish Habitat: Diversity of habitat types supports good populations of most major wildlife and fish found in interior Alaska. Moose, however, are of greatest significance, followed by caribou, fur and fisheries birds. Modest waterfowl populations on the Nowitna contribute over 100,000 birds to fall populations.

Outdoor Recreation and Wilderness:

The Forest has good potential for water oriented recreation, hunting, fishing. However, aircraft and riverboats are the only means of access.

Forests: The proposal includes 5.4 million acres of forested lands, important to watershed, wildlife, and wood product industries.

Minerals and Energy: The area includes 941,000 acres of land with "highly favorable" mineral potential and 4.7 million acres with "favorable" mineral potential. Uranium potential is located over 1.3 million acres.

Range and Agriculture: In the Yukon and Nowitna river areas, along the Kuskokwim River and its north fork, there are 1.4 million farmable acres. Should the need arise, this acreage would be available for agriculture purposes through lease, land exchange or special use permit. Available for range uses are 1.88 million acres. Under National Forest policy, this range would be available for grazing purposes.



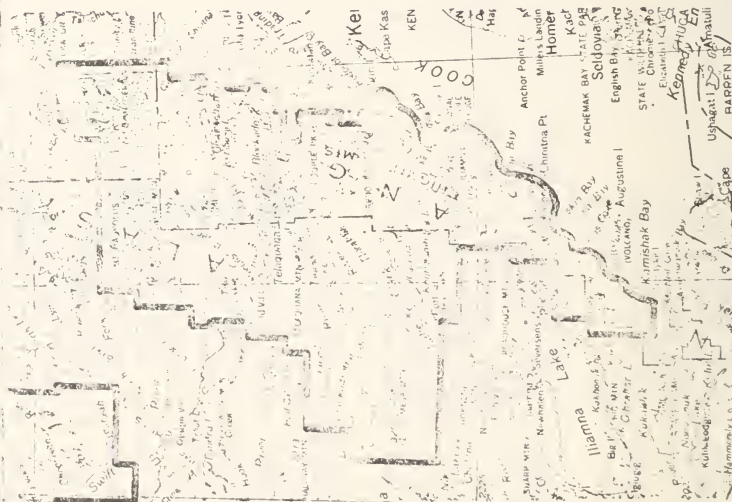
LAKE CLARK NATIONAL FOREST

General Description: This proposal lies in southwest Alaska where the Aleutian and Alaska Ranges join. An area of sharp elevational changes, it contains many spectacular lakes, mountain peaks, two active volcanoes and over 100 miles of coast along Cook Inlet. Climatically, the area is transitional between the maritime and inland influences. Vegetation ranges from coastal coniferous to northern boreal forests and alpine tundra. Only 120 air miles from Anchorage, the area is accessible primarily by boat or airplane.

Resource Values:

Human and Community: Lime Village is located next to this proposal which includes over 3.7 million acres of lands the State obtained in an out-of-court settlement with the Department of the Interior in 1972. State selections would be honored in the National Forest. Sixteen miles of a proposed copper slurry corridor would cross through this proposal. The Sparrevohn Air Force Station may be involved.

Wildlife and Fish Habitat: Most of Alaska's fish, wildlife and bird species occur, however, there are no major concentrations or particularly unique values. Dall sheep, caribou, brown bear and moose are the primary game species. Fisheries values are



Total Acreage: 3.8 million acres

very high. The Kvichak River system provides up to 55% of the spawning and rearing habitat for the Bristol Bay salmon harvest.

Outdoor Recreation and Wilderness:

The outdoor recreation values are high with a wide variety of uses. Scenery is important with the most scenic areas included in the mountainous eastern and coastal portions.

Forests: 1.8 million acres of forested land are included.

Minerals and Energy: Includes 2.5 million acres with "highly favorable" mineral potential (1 million of this has been tentatively selected by the State). Also includes 987,000 acres of "favorable" mineral potential (the State has tentatively selected 321,000 acres of this). There are 23,000 acres of "very favorable" uranium potential and 275,000 acres of "favorable" geothermal potential.

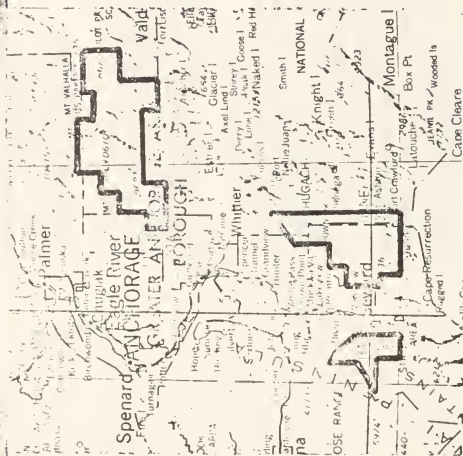
Hydroelectric Power: Three proposed hydro-power projects at Tazimina, Lachbuna, and Chakachamna amounting to 2.45 million megawatt-hours are located here.

Range and Agriculture: In the southwestern portion of this unit are 551,000 acres of farmable soils. There are 872,000 acres of rangeland. Of this, the State has tentatively selected



711,000 acres. These selections would be honored.

CIUGACH NATIONAL FOREST ADDITIONS



Total Acres: College Fiord Unit
161,000 acres
Nellie Juan Unit
276,000 acres
Harding Icefields
116,000 acres

General Description: The College Fiord unit located in Prince William Sound, rises from sea level to over 10,000 feet. The mountainous topography is dominated by rock and ice with 17 significant glaciers. Beginning near

sea level, Sitka Spruce stands gradually change with elevation to cottonwood/hemlock, then alder thickets, and finally alpine heath. The Nellie Juan unit is located northeast of Seward on the Kenai Peninsula. Ice fields dominate the mountainous landforms. Vegetation ranges from scattered spruce and riparian growth in river flood plains to alpine tundra. The glacier fed Nellie Juan River is the principal drainage.

Resource Values:

Human and Community: The Native village of Chenega is located near a part of these additions, as is the city of Seward.

Wildlife and Fish Habitat: Values are low. Mountain goat, black bear, sea mammals and birds occur in modest numbers.

Outdoor Recreation and Wilderness: The area has high recreational values, but limited access. Water oriented recreation is key.

The Harding Icefields area has been proposed as a part of the Seward National Recreation Area.

Forests: Includes 100,000 acres of forested lands.

Minerals and Energy: Includes 23,000 acres with "highly favorable" mineral potential and 390,000 acres with "favorable" mineral potential.

Range and Agriculture: Acres available for range are 207,000.

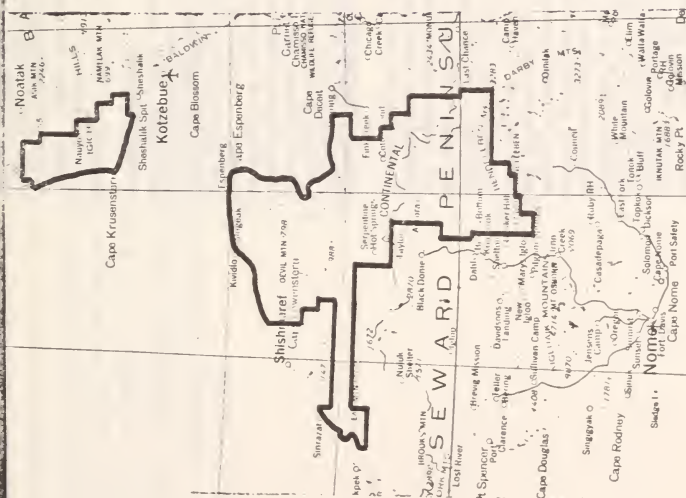




Minerals and Energy: Includes 23,000 acres with "highly favorable" mineral potential and 390,000 acres with "favorable" mineral potential.

Range and Agriculture: Acres available for range are 207,000.

KOTZEBUE SOUND NATIONAL GRASSLAND



Total Acreage: 3.1 million acres

General Description: This 3.1 million acre proposal is comprised of two units that lie on the north and south sides of Kotzebue Sound. Coastal tundra plains dotted with lagoons merge into foothills and inland mountains. Extensive fish and wildlife habitat and areas for water oriented recreation are important resource values. The area adjacent to Goodhope Bay has favorable potential for oil, gas and minerals. Historical, archeological and anthropological values are extremely important.

Resource Values:

Human and Community: One Native village is within this area and 5 adjoin it. Subsistence use of resources is important, particularly to those unemployed or with low income. Corridors for oil, gas, and other purposes have been proposed for 65 miles through the northern unit and 40 miles through the southern unit. Currently air travel is the only practical means of year around access.

Wildlife and Fish Habitat: The primary terrestrial wildlife species found are caribou, Dall sheep, moose, grizzly bear and are important for subsistence and recreational purposes. Fox, wolves, wolverine and lesser furbearers also occur and are of economic importance. A part of the Western Arctic caribou herd moves through the northern portion enroute to winter ranges

to the south and east. Previously utilized caribou ranges on the Seward Peninsula are now largely occupied by reindeer. Moose have extended their range westward and are now common on parts of the Seward Peninsula. Ringed, harbor and bearded seals are abundant in coastal waters. Several species of whales occur seasonally. Waterfowl values are high. The moist lowland tundra, coastal estuarine areas provide extensive areas for nesting, feeding and resting areas. Population densities on some areas equal 60 birds per square mile. Pink and chum salmon runs in the Kotzebue Sound area support a local commercial fishery. Salmon, Arctic char, grayling, sheefish, northern pike and several other species contribute to locally important subsistence and recreational fisheries. They may also provide the basis for future sport fishing opportunities to visitors.

Outdoor Recreation and Wilderness:

Recreation opportunities are currently limited to accessibility. Local residents often combine recreational activities with subsistence pursuits. Most villages hold festivals at various times during the winter. Fly-in hunting, fishing and tourism are important recreational uses. As access improves, opportunities can develop for local communities to develop facilities and services to accommodate visiting recreationists.

Forests: Much of this proposal is moist or wet tundra with a mixture of grasses, sedges, forbs and lichens interspersed with sparse stunted spruce. This is the extreme limit of growth of the interior forest type. Some stringers of white spruce and cottonwood are found along major water tributaries and supply local firewood needs.

Minerals and Energy: The area is highly mineralized with favorable gold, silver and lead potential on 2.59 million acres. Oil and gas is considered to have very important potential on 2.1 million acres. Coal is found in scattered locations. Geothermal energy potential has been identified on the north slopes of the Midnight Mountains.

Water and Hydroelectric Power: The Seward Peninsula affords one major hydroelectric project located at the Tukshuk Channel near Teller. Energy potential at this site is estimated at 290,000 kilowatt hours per year. The Agashahok projects on the lower Noatak River is considered a promising energy source with a potential estimated at 820,000 kilowatt hours per year. Any such projects would affect fish, wildlife and domestic reindeer habitat through associated water impoundments. The coastal lowlands are covered by myriad freshwater lakes and ponds. Major tributaries flowing through or adjacent to this proposal include the Kuzitzin, Serpentine and Noatak rivers. Use of water is limited to some placer mining, transportation and local consumption. The area has a significant history of wildfire.

Range and Agriculture: Limited solar energy, short frostfree growing season and the cold maritime influences of the Chukchi Sea preclude the commercial production of cultivated crops under natural conditions. Soil surveys by the Soil Conservation Service show no potential agricultural soils other than for local subsistence gardening. The range forage resource is primarily suitable for reindeer/caribou. It covers most of the land area and is capable of producing .067 pounds of meat per acre on the average for both reindeer and caribou. Because of long

recovery periods required on damaged ranges, stocking rates are critical. The NANA Corporation currently has 4000 reindeer and estimates that up to 11,000 can be supported within this general area. A major conflict exists between caribou and reindeer which compete for the same range. There is also a tendency for reindeer to become wild, joining caribou herds as they move through an area.



Prepared for Senator Jackson's Committee on Energy and
Natural Resources by Charles Gray, Alaska Professional
Hunter's Association, February 15, 1978.

PR
2-20-78
APKA
AM

HUNTING IN THE CENTRAL BROOKS RANGE

Between the head of the Noatak and the Dietrich Rivers
(Alatna-Gates of the Arctic Area)

<u>Guide</u>	<u>Patented Ground and/or Cabins</u>	<u>Avg. Number of Hunts Conducted*</u>	<u>Approximate Dollar Value</u>
Nelson Walker	Y	4	\$ 9,000
Bernd Gaedeke	Y	16	72,000
Chuck Keim	Y	5	22,500
Harmon (Bud) Helmerichs	Y	5	22,500
Jim Helmerichs	Y	5	22,500
Mark Wartes-works with Helmerichs		4	18,000
John Hankee	Y	6	27,000
Les Fickes		5	22,500
Bill Fickus	Y	3	13,500
Dan Rodey	Y	12	45,000
Dan Wetzel		6	27,000
Rick Reakoff	Y	8	26,000
Peter Merry	Y	8	36,000
TOTALS		<u>87</u>	<u>\$363,500</u>

*Does not include fishing and backpacking trips.

Does not include resident hunters.

Average guiding charge to hunter is \$4500. plus licensing
and tags, transportation, and taxidermy fees.

Range of prices charged by guides for various types
is as follows:

Grizzly Bear-----	\$2500. to 3500.
Sheep-----	2000. to 3500.
Sheep/Grizzly-----	4000. to 6000.
Caribou-----	500. to 1000.
Moose-----	1500. to 2500.
Black Bear-----	500. to 1000.
Wolf-----	250. to 750.
Wolverine-----	250. to 750.

Frontier Flying Service at Bettles, the major flying service operator in the Central Brooks Range is currently flying between 300 and 450 hunters a year into the Central Brooks area. This includes both resident and non-resident hunters. They estimate the average dollar value per hunter to their operation is \$185.00.

During 1977 Frontier flew 1400 persons into all areas of the Brooks Range for various purposes. This includes the fishermen and backpackers.

Besides Frontier Flying Service, there are several other operators that fly a significant number of persons into the Central Brooks Range.

This report gives some indication of usage of the Central Brooks range by hunters.

FGM:NC

FTR
2-20-78 - PM
PMA

Sept. 1977

PRESS RELEASE

GENERAL CRUDE OIL COMPANY, A WHOLLY-OWNED SUBSIDIARY OF INTERNATIONAL PAPER COMPANY, AND HOUSTON OIL & MINERALS CORPORATION ANNOUNCED TODAY THAT EXPLORATORY DRILLING CONDUCTED A JOINT VENTURE AT THE BASE OF THE WESTERN BROOKS MOUNTAIN RANGE IN ALASKA HAS ENCOUNTERED SIGNIFICANT LEAD-ZINC-CADMIUM-SILVER MINERALIZATION. THE MINERAL AREA IS LOCATED ON FEDERAL LANDS APPROXIMATELY 80 MILES NORTH OF KOTZEBUE, ALASKA AND 50 MILES FROM THE CHUKCHI SEA.

THE GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL DATA THUS FAR DEVELOPED PERMIT THE INFERENCE THAT THE FIND IS A MAJOR DISCOVERY, HOWEVER, DATA ARE INCOMPLETE, AND NO RELIABLE ESTIMATE OF THE NUMBER OF TONS OR GRADE OF MINERALS CONTAINED IN THIS DISCOVERY CAN BE MADE UNTIL ADDITIONAL DRILLING AND OTHER TESTS HAVE BEEN COMPLETED. BECAUSE OF THE ONSET OF WINTER IN THIS AREA, WHICH IS NORTH OF THE ARCTIC CIRCLE, THE COMPANIES PROBABLY WILL BE UNABLE TO ACCOMPLISH MEANINGFUL ADDITIONAL EXPLORATION WORK UNTIL WEATHER PERMITS IN 1978. MINE, TRANSPORTATION AND ENVIRONMENTAL STUDIES WILL ALSO BE NEEDED TO DETERMINE THE ECONOMIC SIGNIFICANCE OF THE DISCOVERY.

BECAUSE OF THE DIFFICULTY OF MINE CONSTRUCTION IN THE REMOTE AREA OF THE DISCOVERY, THE TIME REQUIRED TO COMPLY WITH ENVIRONMENTAL AND OTHER GOVERNMENTAL REGULATIONS AND THE LACK OF EXISTING TRANSPORTATION FACILITIES, IT IS ANTICIPATED THAT IF A COMMERCIAL MINE IS DEVELOPED, PRODUCTION WILL NOT BEGIN FOR A NUMBER OF YEARS.

SEVEN CORE HOLES HAVE BEEN DRILLED, FOUR OF WHICH HAVE INTERSECTED MINERALIZED MATERIAL. HOLE NO. 1 DRILLED AT A 45 DEGREE ANGLE, INTERSECTED APPROXIMATELY 48 FEET OF HIGH-GRADE MINERALIZATION IN THREE ZONES BETWEEN 495 FEET AND 572 FEET OF MEASURED DEPTH IN THE BORE HOLE.

A PRELIMINARY ASSAY REPORT SHOWED 15 FEET BETWEEN 495 FEET AND 510 FEET, AVERAGING 4.3 PERCENT LEAD, 14 PERCENT ZINC, 0.07 PERCENT CADMIUM AND 2.55 OUNCES OF SILVER PER TON: 7 FEET BETWEEN 516 FEET AND 523 FEET AVERAGING 5 PERCENT LEAD, 14.4 PERCENT ZINC, 0.97 PERCENT CADMIUM AND 2.70 OUNCES OF SILVER: AND 26 FEET BETWEEN 546 FEET AND 572 FEET AVERAGING 8.1 PERCENT LEAD, 8.2 PERCENT ZINC, 0.05 PERCENT CADMIUM AND 0.27 OUNCES OF SILVER.

HOLE NO. 5, APPROXIMATELY 2,400 FEET TO THE SOUTHWEST OF HOLE NO. 1, DRILLED AT A 45 DEGREE ANGLE, INTERSECTED APPROXIMATELY 98 FEET OF HIGH-GRADE MINERALIZATION IN THREE ZONES BETWEEN 91 FEET AND 253 FEET OF MEASURED DEPTH IN THE BORE HOLE. A PRELIMINARY ASSAY REPORT SHOWED 25 FEET BETWEEN 91 FEET AND 116 FEET AVERAGING 5.7 PERCENT LEAD, 5.8 PERCENT ZINC

WGM INC

AND 0.08 OUNCES OF SILVER; 54 FEET BETWEEN 179 FEET AND 233 FEET AVERAGING 8.5 PERCENT LEAD, 25.5 PERCENT ZINC, 0.25 PERCENT CADMIUM AND 5.32 OUNCES OF SILVER; AND 20 FEET BETWEEN 233 FEET AND 253 FEET AVERAGING 1.5 PERCENT LEAD, 8.5 PERCENT ZINC, 0.02 PERCENT CADMIUM AND 0.12 OUNCES OF SILVER. INDICATIONS OF MINERALIZATION AT OTHER DEPTHS WERE ENCOUNTERED IN HOLE NO. 5.

HOLE NO. 6, DRILLED AT A 45 DEGREE ANGLE AND HOLE NO. 7, DRILLED AT AN 80 DEGREE ANGLE, HAVE ENCOUNTERED ENCOURAGING MINERALIZATION THROUGH ZONES OF APPROXIMATELY 42 FEET AND 71 FEET, RESPECTIVELY, OF MEASURED DEPTH IN THE BORE HOLES. THESE HOLES WERE DRILLED BETWEEN HOLES NO. 1 AND NO. 5. THE CORES FROM THESE HOLES HAVE NOT YET BEEN ASSAYED.

SINCE THE FOUR CORE HOLES MAY NOT HAVE INTERSECTED THE AREAS OF MINERALIZATION AT RIGHT ANGLES, THE CROSS SECTIONAL THICKNESS OF THE ZONES ENCOUNTERED BY THE DRILL HOLES MAY NOT HAVE BEEN ACCURATELY DETERMINED.

THE THREE REMAINING HOLES ENCOUNTERED NO MINERALIZATION. HOLE NO. 2 WAS DRILLED AT THE SAME LOCATION AS HOLE NO. 1 BUT AT A DIFFERENT ANGLE AND TO A SHALLOWER DEPTH. HOLES NO. 3 AND NO. 4 WERE DRILLED AT SITES TO THE NORTHEAST OF HOLE NO. 1.

CLAIMS HAVE BEEN STAKED AND FILED IN THE AREA OF THE FIND.

GENERAL CRUDE OIL COMPANY IS THE JOINT VENTURE OPERATOR AND OWNS 47.5 PERCENT OF THE JOINT VENTURE. HOUSTON OIL & MINERALS CORPORATION OWNS 47.5 PERCENT OF THE JOINT VENTURE, AND PRIVATELY OWNED WGM INC., ANCHORAGE BASED MINING AND GEOLOGICAL CONSULTANTS, OWNS 5 PERCENT.

Red Dog

8-30-75

ANCHORAGE DAILY NEWS 8/30/75

'Impressive' deposits found

Important deposits of valuable minerals have been discovered in the western Brooks Range by geologists conducting a mineral resource study of D-2 lands for the U.S. Bureau of Mines.

Revealed Friday, the discovery involves an impressive series of lead, zinc, silver and barite located approximately 35 miles north of the village of Noatak, on the west side of Deadlock Mountain. The mineralized area — known as the Red Dog Prospect — is estimated to be about two miles long and one-half mile wide, and is approximately two miles inside the western boundary of the proposed Noatak National Arctic Range.

ALTHOUGH concentrations of lead, zinc and barite were reported in the area by the U.S. Geological Survey as the result of 1955 and 1968 reconnaissance

mapping of the Delong Mountains, it was only this summer that geologists from Watts, Griffiths and McQuat, Inc. conducted somewhat more detailed studies of the area. The geologists have been conducting a resource study of D-2 lands under a \$300,000 contract awarded by the Bureau of Mines last May. There are plans to continue the work next summer.

This summer's investigation included preliminary mapping, geochemical sampling, sampling of the few exposed outcrops and sampling of rubble derived from the outcrops. Because drilling is prohibited within the proposed Arctic Range, geologists were unable to make accurate estimates of potential quantity reserves.

The range, a withdrawal covering 7.5 million acres, is among more than 80

million acres of the state being studied as a possible national park, forest, refuge or wild and scenic river. The withdrawals were made under terms of the Alaska Native Land Claims Settlement Act of 1971.

The Arctic Range is a relatively unique designation that would prohibit any development for 20 years. Congress must act on the withdrawal by the Interior Department before late 1978.

While the Bureau of Mines will not publicly interpret information gathered so far on the deposits, The Daily News has learned from independent sources that the discovery has at least two highly significant aspects:

It is the largest occurrence of base mineralization found so far in the

(Continued on page 2)

'Impressive'

(Continued from Page 1)

western Brooks Range, and, the reportedly high percentage of barite content in much of the mineralization indicates a potentially large and valuable Alaskan supply of a key component in drilling mud for petroleum exploration and development.

If a substantial quantity of barite exists, it would be a simple matter to construct an airstrip and fly the mineral to Prudhoe Bay or other petroleum drilling locations, sources say. Currently, much of the barite used on the North Slope comes from Canada, via the Mackenzie River.

A detailed report on the Red Dog

Red Dog

9-2-75

Brooks mineral find looks 'considerable'

By BOB PORTERFIELD
Daily News Staff Writer

Although initial geological field work has not produced enough information for accurate reserve estimates, assay results from samples collected at the site of a massive mineralization discovery in the western Brooks Range indicate the economic value may be considerable.

Geologists from the Anchorage consulting firm of Watts, Griffiths and McQuat, Inc., working under the auspices of a \$300,000 U.S. Bureau of Mines contract to conduct a mineral resource study of proposed D-2 land withdrawals in and adjacent to the Brooks Range, uncovered the mineralized area while reassessing a previously reported occurrence of lead, zinc and barite concentrations at the "Red Dog Prospect," approximately 35 miles north of the village of Noatak.

LOCATED ON the west side of Deadlock Mountain near the Kelly River, about two miles inside the western boundary of the Noatak National Arctic Range, indications of base metal concentrations at Red Dog were reported by the U.S. Geological Survey in 1955 and 1968 during reconnaissance mapping of the Delong Mountains.

Last July, geologic mapping and geochemical sampling of rock and silt samples collected in the area proved sufficient to confirm the existence of massive lead, zinc and silver zones associated with barite "host rock" as well as massive barite zones.

Analysis of selected samples obtained from bedrock and at surface level showed an average content of 85 percent barite, five-and-one-half to seven per cent zinc, three per cent lead and one-and-one-quarter ounces of silver. Other samples showed much higher ranges — 96.2 per cent barite, 42.7 per cent zinc, 8.9 per cent lead and three ounces of silver.

STILL, THE fact that the discovery lies within a proposed national refuge may prove a major stumbling block to immediate — if not future — development, unless the Department of the Interior, or Congress, is willing to

make minor boundary adjustments.

Under terms of the Alaska Native Claims Settlement Act, Congress has until 1978 ultimately to decide the extent and location of federal land withdrawals in the state.

THE BUREAU of Mines says further work — including core sampling — must be conducted before estimates of tonnage reserves are made, but this can't be accomplished immediately because drilling is prohibited in D-2 lands. However, the Bureau does say there could be eastward and westward extensions of the mineralization.

A Watts, Griffiths geologist who supervised exploration this summer told The Daily News that poor flying weather last week forced a halt to all field work in the Red Dog area. But, he added, there were enough unused contract funds to continue work for awhile next summer.

It will be some time before the economic impact of the Red Dog discovery can be properly assessed. Barite is an important component of drilling mud used by the nation's petroleum industry, and, if the Brooks Range deposits prove sufficient in quantity, it could drastically cut the cost of mud used in Alaska. Attendant lead, zinc and silver, too, are important economic considerations.

WEM

SIGNIFICANT MINERAL DEPOSITS AND ANOMALIES

NORTHERN, SOUTHWESTERN, ALASKA PENINSULA AND SOUTHERN ALASKA

1. Major stratabound massive sulfide deposit in black shales and cherts; discovered in 1977; large tonnages of high grade Pb-Zn-Ag-Cd ore indicated; announced drill intercept of 54' of 8.5% Pb, 25.5% Zn, 0.25% Cd, and 5.32 oz./ton Ag.
2. Major stratabound massive sulfide prospect in black shales and cherts; similar to deposit at locality 1; active exploration (drilling) in 1977.
3. Major stratabound massive sulfide (Zn-Pb-Ag-Cd-barite) deposit in black shales and cherts; eastward extension of mineralized belt containing deposit/prospect at localities 1 and 2; inferred reserves in excess of 15 million tons of 15 to 20% Pb+Zn and 3 oz./ton Ag.
4. Stratabound massive sulfide occurrence similar to that at locality 3; grades of up to 30% Pb+Zn reported.
5. Significant chromite occurrences and Ni geochem anomalies in layered ultramafic intrusive complex.
6. Chromite occurrences in ultramafic intrusive complex; potential exists for similar occurrences in belt between localities 5 and 6.
7. Major stratabound massive sulfide (Pb-Zn-Ag) occurrence associated with black shales, cherts and felsic volcanics; 60' x 150' exposure averages 3.0% Pb, 17.4% Zn, and 3.3 oz./ton Ag; numerous sulfide occurrences and strong geochem anomalies between localities 1 thru 4 and locality 7 indicates mineralized belt is continuous.
8. Coal-bearing Cretaceous rocks are known or inferred to underlie about 58,000 square miles of northern central Alaska; total resources in northern Alaska are estimated to be 100,905.3 million short tons of subbituminous coal and lignite, and 19,292.2 million short tons of bituminous coal.
9. Stratabound massive sulfide (Pb-Zn) prospects; grades of up to 50% Zn and 6% Pb reported; active claims in 1977.

10. Stratiform massive sulfide Cu-Pb-Zn-Ag potential; grades of up to 5% Zn, 1% Cu, 1% Pb and 0.5 oz/tan Ag reported; active claims.
11. Significant fluorite mineralization; grades of up to 78% fluorite reported.
12. Significant Pb/Zn/Cu/Cd geochemical anomalies associated with black shales and cherts, and pyritized shales to the west indicates eastward continuation from locality 7 of major stratabound Pb-Zn-(Cu) belt along northern Brooks range.
13. Significant stratiform fluorite occurrence; traced far approximately 2 miles; grades of up to 25-30% fluorite (CaF_2) reported.
14. Stratiform Cu mineralization in chert; stratabound massive sulfide potential similar to that at localities 1 thru 4 and 7.
15. Stratabound massive sulfide (Cu) potential; chalcopyrite in sedimentary and volcanic rocks.
16. Phosphate deposits occur in two stratigraphic units (Lisburne and Shublik) which extend across the entire northern Brooks Range; grades of up to 35.8% P_2O_5 report; huge inferred resources.
17. Mo-Sn-W-Pb-Zn potential in intrusive complex and associated skarns.
18. Major porphyry Mo-(W)-(Sn) occurrence in intrusive breccia pipe; strongly anomalous Mo-W geochem anomalies; potential exist for similar occurrences between localities 17 and 18.
19. Stratiform massive sulfide potential; widespread galena (Pb) mineralization; grades of up to 30% Pb and 1% Cu reported; strongly anomalous Pb and Zn geochem values in stream sediments.
20. Copper replacement (Ruby Creek-type, locality 26) and stratiform barite Zn-(Cu) occurrences in carbonates; possible resources of 1 to 10 million tons barite at one occurrence.
21. High-grade gold accumulations in placer gravels.

22. Placer Au deposit; worked intermittently from 1909 to present; total production through 1931 estimated at about 31,320 oz; large reserves remain unmined.
23. Stratabound massive sulfide potential; massive Cu and Pb-Zn-Ag mineralization found.
24. Numerous Zn and Cu geochemical anomalies associated with rocks similar to those at major Cu-Pb-Zn-Ag deposits in the Ambler Mineral Belt and massive sulfide mineralization at locality 23 indicates a westward continuation of the Ambler Mineral Belt.
25. Massive sulfide deposit; significant tonnages of Zn-Ag ore; 3000' strike length; active exploration.
26. Major stratiform (replacement) copper deposit in carbonates; 1 million tons of copper in 25,000 to 150,000 ton ore bodies grading 4-12% Cu.
27. Major stratabound massive sulfide deposit in a sequence of metarhyolites, metatuffs, and graphitic schists; current drilling indicates reserves of 30 to 35 million tons of 4.0% Cu, 5.5% Zn, 1.0% Pb, 1.5 oz/ton Ag.
28. Major stratabound massive sulfide deposit in a sequence of metarhyolites and schists; drilling thru 1976 indicated a gross metal value of approximately \$1,000,000,000; numerous other stratabound sulfide occurrence between deposit at locality 25 and deposit at locality 28 makes up a continuous 60 mile long major volcanogenic stratabound massive sulfide belt, the Ambler Mineral Belt; strong geochem anomalies in a similar environment at locality 24 and similar occurrences at localities 23, 29, and 31 indicates this belt extends to the west and east.
29. Potential for major stratabound massive sulfide deposit comparable in size to deposits and localities 25, 27 and 28; gossan zones found with strongly anomalous Cu-Pb-Zn-Ag values; unexplored due to land status.
30. Skarn deposit; 100' by 300' zone with approximately 1% WO₃-Sn.
31. Stratiform massive sulfides Cu-Pb-Zn-Ag prospects; gossans of massive sulfides common; active exploration in 1977.

32. High-grade replacement (?) Pb-Zn-Ag prospects in carbonates; grades of up to 20% Pb + Zn reported; active claims.
33. Stratiform Cu-Pb-Zn mineralization; grades of up to 3% Cu reported.
34. Cu sulfides in black phyllites and shales; stratiform massive sulfide potential; active claims.
35. Placer Au district; substantial production; possible significant Cu-Pb-(Zn) veins with copper mineralization up to 2% Cu also occur in area.
36. Stratiform (?) Cu mineralization in calcareous schist along 5 mile long belt; grades of up to 1% Cu reported; active claims.
37. Major placer Au district; substantial production (255,000 oz.) from 1900 to present; significant deep placers reserves remain unmined.
38. Very strongly anomalous stream sediment (up to 3500 ppm Zn) and rock (up to 3 oz./ton Ag with Pb-Zn) geochemistry; stratiform massive sulfide potential.
39. Porphyry copper prospects with associated skarn deposits; potential for small deposits grading over several percent Cu.
40. High grade Cu-Zn occurrences with values up to 10% Cu and 10% Zn.
41. High grade Cu and Cu-Zn-(Pb)-(Ag) skarn (?) prospects with potential for large tonnages; grades of up to 10% Cu and 5% Zn reported.
42. Porphyry Mo-Cu prospect; grades of up to 0.1% Mo reported; active claims.
43. Major Au district; substantial production (greater than 30,000 oz. Au) from both placer and vein deposits; active exploration, development, and minor production since early 1960's.

44. Massive sulfide Cu-Zn prospects; strong Cu-Zn soil and rock geochemical anomalies; active claims and exploration in 1976-77.
45. Stratiform barite - (Cu-Pb-Zn-Ag) potential.
46. Strongly anomalous uranium values (up to 60 ppm) associated with granitic rocks.
47. Major tin, fluorite, tungsten and beryllium deposits; potential reserves over 200 million tons.
48. Significant placer Sn district and Sn-Cu-(Au-Ag-Pb-Zn) skarn deposits; mineralized zone 1000 feet long and 65 feet wide contains 0.2% Sn and 0.3% Cu with values up to 2% Sn and 3% Cu; the area is also strongly anomalous in uranium.
49. Active uranium claims; uranium soil geochemical anomalies up to 0.05% U_3O_8 .
50. Stratiform massive sulfide Pb-Zn-Ag prospects; 30 to 150 foot thick zone of oxidized Pb-Zn-Ag ore with a potential strike length of over one mile; oxidized material assays up to 12% Pb + Zn and 2 oz/ton Ag; active exploration in 1977.
51. Stratiform massive sulfide Pb-Zn-Ag-Au prospects; strongly anomalous soils and gossans; potential for a very large mineralized horizon.
52. Stratiform massive sulfide Pb-Zn-Ag prospect; high grade ore shipped in 1921 contained 30% Pb, 5% Zn and 33 oz/ton Ag; active exploration in 1977.
53. Placer Au deposits with significant reserves blocked out; uranium in placer concentrate assays up to 3.8% uranium.
54. Stratiform massive sulfide Pb-Zn-Ag-barite-fluorite prospects; mineralization of large extent and moderate grade; active claims and exploration in 1976-77.
55. Tungsten-antimony-gold lodes with up to 3% WO_3 , and stratiform (?) massive sulfide Pb-Zn-Ag mineralization with up to 8% Pb + Zn; active claims and exploration in 1976-77.
56. Major placer Au district; substantial production (1,167,200 oz Au) from some of the world's richest placer deposits.

57. Stratiform massive sulfide Pb-Ag-(Zn) prospect in carbonates; grades of up to 23% Pb and 20 oz/ton Ag reported.
58. Substantial placer Au reserves; active exploration.
59. Major lode Au deposit; contains significant W mineralization; produced over 10,000 oz Au.
60. Placer Au district; produced 90,240 oz Au from placers; vein deposits in area contain up to 8.5 oz/ton Au and 2.4% Hg.
61. Uranium prospect in intrusive rocks; highly anomalous Th (thorium) geochem values (1000 ppm); active claims.
62. Stratiform (?) massive sulfide Pb-Zn-Ag prospects in carbonates; produced Pb-Ag ore between 1881 and 1890 that averaged about 10% Pb and 4 oz/ton Ag; grades of oxidized zinc ore up to 34% Zn reported.
63. Significant Mo-F mineralization; values up to 0.15% Mo reported; active claims.
64. The Darby pluton is known to be highly anomalous in U and Th; active exploration for uranium deposits.
65. Significant Pb-Zn-Ag mineralization; values up to 15% Pb + Zn and 10 oz/ton Ag; altered zone 18 miles long and 2 to 5 miles wide; active exploration.
66. Significant uranium geochemical anomalies occur in and around intrusive complex; active exploration.
67. Significant Mo-F mineralization disseminated in intrusive rock; values greater than 0.2% Mo reported; active exploration.
68. Significant Pb-Zn-Ag mineralization; values greater than 3% Pb + Zn and 1 oz/ton Ag reported; active exploration.

69. Uranium prospect; active claims.
70. Numerous U_3O_8 occurrences associated with alkaline intrusive complexes; active claims and exploration.
71. Uranium occurrence; values up to 500 ppm uranium reported.
72. U_3O_8 occurrences associated with alkaline intrusive complex; active exploration.
73. Placer Au deposit; substantial production from 1957 to 1975.
74. Area of highly anomalous uranium in airborne and ground geophysical and stream sediment geochemical surveys; recent staking activity.
75. Recent discovery (on d-2 land) of significant tungsten mineralization along intrusive contact zone; similar to major recent discoveries in the Yukon, Canada.
76. Active placer and lode Au district; produced 380,000 oz Au up to 1960; large placer gold reserves remain unmined.
80. Major asbestos deposit; potential for large reserves of minable grade material; active exploration.
81. Recent discovery of significant uranium mineralization; rock geochem values up to 0.1% U_3O_8 reported; active claims.
82. District with numerous active placer Au claims, uranium anomalies (up to 0.06% uranium in rock) and tungsten mineralization.
83. Major lode Au districts with significant tungsten mineralization; produced 239,247 oz. Au prior to 1960.
84. Significant Au lode and placer deposits; values up to 0.3 oz/ton Au in rock reported; potential for large reserves.

85. Stratabound (?) massive sulfide Pb-Zn mineralization; grades of up to 17% Zn and 2% Pb reported.
86. Bedded iron formation with values up to 27% Fe.
87. Stratabound (?) massive sulfide Cu-Pb-Zn-Ag mineralization; grades of up to 1% Cu, 5% Zn, 3% Pb, and 2 oz/ton Ag reported.
88. Area with significant stream sediment and soil geochemical anomalies; possibly indicative of stratabound massive sulfide mineralization; values up to 400 ppm Cu, 300 ppm Pb, 2000 ppm Zn and 20 ppm Ag reported.
89. Significant stream sediment and soil geochemical anomalies; possibly indicative of stratabound massive sulfide mineralization; values up to 200 ppm Cu, 1000 ppm Pb, 900 ppm Zn, and 5 ppm Ag reported.
90. Numerous active placer Au deposits in area; lode Au deposits and W mineralization also occurs in area.
91. Significant stratabound massive sulfide prospect; values up to 0.52% Cu, 2.5% Pb, and 5 oz/ton Ag in oxidized rock reported; active claims and exploration.
92. Placer Au-Sn district; produced about 390,000 oz. Au between 1931 and 1960; district also contains a Pb-Ag prospect (92a) with up to 82 oz./ton Ag (potential for significant stratabound massive sulfide deposits).
93. Placer Au-Sn district; produced about 450,000 oz. Au through 1960.
94. Significant porphyry-type Mo mineralization occurs at several localities within the Sevuokuk Pluton; grades of up to 0.25% MoS_2 reported.
95. Significant porphyry Cu occurrence; grades of up to 0.3% Cu in surface rock samples reported; stream sediment samples are strongly anomalous in Mo (70 ppm), Cu (1500 ppm), Pb (500 ppm) and Zn (700 ppm).
96. Major placer Au district; produced 1,350,000 oz. Au; district is currently active with moderate placer reserves; potential for very large reserves of lode Au (rock samples contain up to 0.5 oz./ton Au over 30 feet); area also contains significant Hg mineralization.

97. Placer Au district with significant lode Au-Sb-Hg mineralization; produced more than 540,000 oz. placer Au.
98. Major lode Au-Cu district; one mine produced between 40,000 and 60,000 oz. Au.
99. Major mercury (Hg) district; one mine produced 28,061 flasks of Hg between 1940 and 1961.
100. Major titaniferous magnetite (Fe) deposit in ultramafic intrusion; reserves of several billion tons of 10.5 to 12% magnetic Fe.
101. Placer Au district; source of Au may be Precambrian conglomerates with associated uranium typical of the world's largest known deposits.
102. Major platinum (Pt) placer district; estimated to have produced well over 500,000 oz. of the platinum-group metals between 1934 and 1966; the only commercial source of Pt metals in the United States; reserves of approximately 40 million cubic yards.
103. Major lode Au deposit; produced about 100,000 oz. Au from ore which averaged about 0.4 oz/ton Au.
104. Porphyry Cu-Mo deposit; reserves of 100 million tons of 0.5% Cu and 0.03% Mo; strong stream sediment geochemical anomalies (up to 500 ppm Cu, 700 ppm Pb, 20 ppm Ag and 70 ppm Mo) several miles to the north suggest this area has similar potential for porphyry Cu-Mo deposits.
105. Significant bituminous coal deposit; seams up to 30 feet thick; area also contains strongly anomalous stream sediments (up to 1000 ppm Cu, 1500 ppm Pb and 30 ppm Ag) indicative of porphyry Cu mineralization similar to that at locality 104.
106. Porphyry Cu prospect; grades of up to 0.72% Cu reported; potential for large tonnages of low grade Cu mineralization.
107. Porphyry Cu-Mo prospect; grades of up to 0.48% Cu and 0.035% Mo reported; potential for moderate tonnages of low grade Cu mineralization.

108. Porphyry Cu prospect; grades of up to 0.56% Cu reported; potential for moderate tonnages of similar grade material.
109. Porphyry Mo prospect; grades of up to 0.21% MoS_2 in racks and 350 ppm Mo in stream sediments reported; potential for large tonnages of low grade Mo mineralization.
110. Porphyry Cu prospect; grades of up to 0.39% Cu reported; potential for moderate reserves of similar grade material; numerous stream sediment and color anomalies (gossans) indicative of porphyry Cu-Mo mineralization occur between localities 104 and 110; the entire Gulf of Alaska side of the Alaska Peninsula is a major porphyry Cu-Mo belt (province) which is continuous with a major porphyry Cu-Mo belt in the Alaska Range to the northeast.
111. Major placer Au and lode Ag-Au-Pb-Zn-Sb-W district; produced about 50,000 oz. placer Au; lode deposits very high-grade (Ag grade averaged 157 oz./ton); potential for significant Ag-Au-Pb-Zn deposits; active claims and exploration.
112. Major antimony (Sb) deposit; produced about 3.5 million lbs. Sb; resources of about 10 million lbs. Sb; highly anomalous stream sediments in area (up to 1900 ppm Zn, 2200 ppm Pb, 500 ppm Cu, 3.0 ppm Ag) indicative of stratabound massive sulfide deposits.
113. Significant stratabound massive sulfide barite-Pb-Zn-Ag occurrences; grades of up to 3% Pb, 1% Zn and 1 oz./ton Ag reported in oxidized rock; mineralized zones up to 6 miles long and 1/4 mile wide; potential for large tonnages of high-grade material; a major stratabound massive sulfide belt extends eastward from this locality across the entire northern Alaska Range.
114. Strongly anomalous stream sediment samples (up to 650 ppm Zn and 252 ppm Pb); indicative of significant stratabound massive sulfide mineralization such as that at localities 113 and 115 (geological environment similar to that at localities 113 and 115.)
115. Major stratabound massive sulfide Cu-Pb-Zn-Ag prospect; grades of up to 4% Cu, 14.5% Zn, 6% Pb and 7.6 oz./ton Ag reported; active claims and exploration.
116. Significant stratabound massive sulfide Cu-Pb-Zn-Ag prospects; potential for large, high-grade deposits; active claims and exploration in 1977.

117. Areas of strongly anomalous stream sediment samples (up to 2000 ppm Zn and 2100 ppm Cu); indicative of significant stratabound massive sulfide Cu-Zn-Pb-Ag mineralization.
118. Porphyry Cu-Mo prospects; potential for discovery of significant tonnages of supergene enriched are such as at locality 120; active claims and exploration.
119. Porphyry Mo prospect; grades of up to 0.17% MoS₂ reported in drill intercepts; active claims and exploration.
120. Major porphyry Cu-Mo prospect; supergene enrichment occurs at this prospect as well as at other porphyry Cu prospects in the Tanana Lowlands (localities 118) which make this area attractive for porphyry Cu exploration; potential for large reserves of 0.5% Cu and 0.05% MoS₂; active exploration and claims.
121. Stratabound massive sulfide prospect; moderate to high-grade Pb-Zn-Ag in drill intercepts; potential for economic deposits.
123. Stratabound massive sulfide Cu-Zn-Pb-Ag prospect with grades of about 2% Cu equivalent; active claims.
124. Significant disseminated Cu-Ni-Au mineralization; discovered in 1976.
125. Significant massive sulfide Cu-Ag-Au occurrence; discovered in 1976; grades of up to 33.5% Cu and 41 oz./ton Ag reported.
126. Significant Ag-Sn-Be mineralization associated with granitic intrusions; grades of up to 4.5% Sn over mining widths; area also has uranium and tungsten potential.
127. Significant massive and disseminated chromite occurrences associated with ultramafic intrusions; discovered in 1975 by U.S.G.S.
128. Stratiform Cu-Au-Ag-Sb prospect; mineralized zone about 10,000 feet by 3000 feet; grades of up to 0.7% Cu, 9 oz./ton Ag, 1.8 oz./ton Au and 0.7% Sb reported.
129. Significant Sn-Ag-Zn skarn prospect; discovered in 1976.

130. Significant Sn-Ag-(Cu-Pb-Zn) mineralization; grades greater than 0.1% Sn, 15 oz./ton Ag, 2% Pb and 1% Zn reported; veins exposed over 1.5 mile strike length.
131. Major Au-Cu-Ag deposit in breccia pipe; produced about 1,581 oz. Au, 8,617 oz. Ag and 42,000 lbs. Cu; proven reserves of about 10 million tons of 0.1 oz./ton Au with Cu and Ag.
132. Porphyry Cu-Ag prospect; grades of up to 0.5% Cu and 2 oz./ton Ag reported.
134. Major stratiform massive sulfide Cu-Ag deposit; reserves of about 5 million tons of 2% Cu with potential for larger reserves.
135. Stratabound (?) Cu-Ag-Au prospect; strike length of several miles; grades of up to 14% Cu reported.
136. Porphyry Cu prospect and placer Au district; substantial placer Au production; large placer Au reserves.
137. Porphyry Mo-Cu prospect; potential for large tonnages of low-grade Mo-Cu mineralization.
138. Porphyry Au-Cu prospects; potential for large low-grade deposits.
139. Major porphyry Cu-Mo deposit; inferred reserves of 320 million tons of 0.35% Cu and 0.03% MoS_2 .
140. Major porphyry Cu-Mo deposit; inferred reserves of 500 million tons of 0.3-0.5% Cu and 0.03% MoS_2 .
141. Cu-Pb-Zn-Ag mineralization in breccia pipe; potential for significant high-grade mineralization.
142. Porphyry Cu deposit; inferred reserves of 16 million tons of 0.2% Cu.

143. Porphyry Cu deposit; inferred reserves of 60 million tons of 0.2% Cu.
144. Porphyry Cu deposit; inferred reserves of 160 million tons of 0.2% Cu.
145. Porphyry Mo prospect associated with intrusive breccia pipe.
146. Significant stratiform Cu occurrences; mineralization in basic volcanics occurs over several square miles with up to 2-5% Cu.
147. Porphyry-type Cu-Mo mineralization in intrusive complex; up to 3.3% Cu in veinlets.
148. Major stratabound massive sulfide Pb-Zn-Ag-Au-barite mineralization in felsic volcanics and tuffs; consistent grades of 1% Cu, 2% Pb, 1-5% Zn, 0.75 oz./ton Ag, 0.03-0.09 oz./ton Au and 15-30% barite reported; potential for major deposit.
149. Stratiform massive sulfide Cu prospect; massive pyrite with several percent Cu; prospect similar to that of major deposit at locality 150.
150. Major stratiform massive sulfide deposit; proven reserves of greater than 10 million tons of greater than 1% Cu; potential for greater than 30 million tons of greater than 1% Cu; other Cu, Pb, and Zn occurrences in areas have similar potential.
151. Massive iron skarn deposits; grades of 10-30% Fe_3O_4 common; local rock samples contain up to 13% Zn, 6.6% Cu, and 10 ppm Ag.
152. Significant porphyry Cu mineralization in volcanic-intrusive complex; stream sediments samples over several square miles are strongly anomalous in copper (360-1250 ppm).
153. Significant porphyry Cu-Ag prospects; strongly leached rocks contain up to 0.3% Cu, 14 oz/ton Ag, 0.15% Pb and 0.36% Zn over mineralized zones in excess of 500 feet wide and 2000 feet long.
154. Significant stratabound massive sulfide Cu-Ag-Au deposits with 3-4% Cu; deposits are similar to those in the Ambler Mineral Belt in the Brooks Range (localities 25, 27 and 28).

155. Significant porphyry Cu-Mo mineralization; grades of 1-5% Cu reported.
156. Stratiform massive sulfide Cu mineralization; grades of 1-3% Cu reported; mineralization similar to major deposit at locality 150.
157. Significant porphyry Mo prospects; grades of up to 0.32% Mo in rocks and 200 ppm Mo in stream sediments reported; potential for large low-grade Mo deposits.
158. Significant porphyry Cu-Mo mineralization in intrusive complex; grades of up to 0.88% Cu and 0.33% Mo reported; potential for large low-grade Cu-Mo deposit.
159. Major porphyry Mo occurrences; assays of mineralized rocks range from 0.1 to 2% Mo; some occurrences have associated Cu, Pb (up to 2%), and Zn (up to 1.85%).
160. Area of very strongly anomalous Mo (25 to 960 ppm) in stream sediment samples; indicative of significant porphyry Mo mineralization.
161. Porphyry Cu mineralization in altered intrusion.
162. Porphyry Cu mineralization in tourmalinized intrusion; grades of around 1% Cu common; potential for large low-grade deposit.
163. Porphyry-type Cu mineralization and stratiform massive sulfide prospects; grade of 1 to 3% Cu reported in intrusions; massive sulfide prospects contain up to 13% Zn and 5% Cu; active claims and drilling; potential for significant deposits.
164. Porphyry Cu mineralization; grades of around 1% Cu reported.
165. Area contains several major porphyry Mo-Cu prospects; grades of 0.5 to 1% Mo with important credits of Au (up to 0.75 oz./ton) are common.
166. Complex Cu-Ag-Sn deposit; grades of up to 105 oz./ton Ag; grades in 30-foot drill intercept up to 37 oz./ton Ag and 3% Cu.

167. Porphyry Cu mineralization; average grade of about 0.6% Cu and 0.18 oz./ton Ag; skarn deposits adjacent to intrusion contain up to 22% Cu and 14 oz./ton Ag.
168. Porphyry Mo prospect; grades of up to 3% Mo reported; active claims.
169. Significant massive and disseminated chromite (Cr) occurrences in layered ultramafic intrusive complex; grades of up to 25.8% Cr_2O_3 reported.
170. Massive and disseminated chromite (Cr) in ultramafic intrusive complex; rocks geochemically anomalous in Ni.
171. Major lode Au-(Ag-Cu-Pb-Zn-Mo) district; produced about 404,425 oz. lode Au and about 204,000 oz. placer Au; potential for porphyry Cu-Mo deposits.
172. Major stratabound massive sulfide Cu-Zn-Ag deposit; produced about 205 million lbs. Cu from about 6 million tons ore (grade averaged about 1.7% Cu); inferred reserves about 5 million tons of 1% Cu, 1.5% Pb+Zn, and 1 oz./ton Ag; deposit occurs near southern end of major stratabound massive sulfide belt that contains deposits at localities 173 thru 176; numerous other occurrences in area have potential for large tonnages of similar grade ore; active claims and exploration.
173. Major stratabound massive sulfide Cu-Zn deposit similar to deposit at locality 169; published reserves at least 1.1 million tons of 1.25% Cu; potential for larger reserves; numerous similar massive sulfide occurrences in area have similar potential; active claims and exploration.
174. Stratabound massive sulfide Cu-Zn-Au deposit; produced about 16,000 tons ore that averaged about 10% Cu; active claims and exploration.
175. Major stratabound massive sulfide Cu-(Au-Ag-Pb-Zn) deposit; produced about 100 million lbs. Cu; similar to deposits at localities 172 and 173; active claims and exploration.
176. Stratabound massive sulfide Cu-(Ag-Au-Zn) prospect; active claims and exploration.
177. Significant massive and disseminated Cr-(Cu-Ni-Pt) occurrences in ultramafic intrusions; active claims and exploration.

178. Significant massive and disseminated mineralization in ultramafic intrusion.
179. Porphyry Cu-Mo prospects; grades of up to 2% Cu reported; active claims and/or exploration.
180. Major stratiform massive sulfide Cu-Ag deposits (Kennecott); produced approximately 1.2 billion lbs. Cu and 9 million oz. Ag.
181. Significant stratiform massive sulfide Cu-Ag deposits (Kennecott-type); contain drilled out reserves; potential for large high-grade deposits.
182. Significant stratiform massive sulfide Cu-Ag deposits (Kennecott-type); recent production.

MINERAL POTENTIAL

GATES OF THE ARCTIC PARK PROPOSAL
BYDAVID A. HEATWOLE
THE ANACONDA COMPANY - ANCHORAGE

My name is Dave Heatwole, I am an exploration geologist employed by The Anaconda Company. I have spent the past four years working in the Southwestern Brooks Range, principally in the Ambler District. During my talk today I want to comment on the mineral potential that industry recognizes in the proposed Gates of the Arctic Park and bring to your attention how the various park proposals will inhibit the development of the known deposits of the Ambler District.

In discussing the mineral potential, I would like for you to refer to the attached map of the proposed park. The first thing I would ask you to note is the numerous red dots denoting important mineral prospects which are clustered just outside the southern boundaries of the proposal. The lack of prospects inside of the park is due to the fact that industry will not prospect in an area where we cannot obtain the mineral rights. Because the D-2 lands of the park proposal have been closed to mineral entry, no prospecting has taken place, hence, there has been no discoveries. So the fact that only a few important prospects are found inside the park proposal does not mean it has no mineral potential, it simply means it has not been prospected.

I would like to comment specifically on some of the identified prospects.

Prospect 25 - is a high grade copper, lead, zinc, silver deposits.

5 drill holes have defined several millions tons of mineral

resource with values up to \$110/ton. The geology suggests significant additional reserves will be found.

Prospect 26 - is a very high grade copper deposit, numerous drill holes have defined several 100 thousand tons of high grade reserve worth approximately \$120/ton and millions of tons of lower grade copper.

Prospect 27 - is one of the world's largest copper, lead, zinc, silver ore bodies. Numerous diamond drill holes have defined 40 million tons which average 4% copper, 1.0% lead, 5.5% zinc, 1.5 ounces/ton silver.

Prospect 28 - is a major copper, lead, zinc, silver occurrence, where 17 drill holes have defined over 1 billion dollars worth of metal. The deposit is almost surrounded by the proposed park, and is less than 6 miles from the park boundary.

The other red dots in this area represent important base metal prospects in the Ambler District.

Prospect 29 - are geochemical anomalies in rocks geologically similar to those of the Ambler District. D-2 land status has prevented their testing by diamond drilling.

Prospect 30 - is a known skarn deposit assaying 1% tungsten-tin.

Prospect 31 - are geochemical anomalies and gossans in rocks similar to those of the Ambler District.

Prospects 32,33,34,36 - are copper, lead, zinc, silver occurrences in sedimentary rocks, grades of up to 20% lead-zinc and 3% copper have been recorded. Uncertain land status is preventing testing by drilling.

Prospects 35, 37 - are placer gold occurrences, which have had a significant past production.

Prospect 39 - is a porphyry copper occurrence, containing small skarn deposits grading up to several per cent copper.

Prospect 40 - is a high grade copper-zinc occurrence with values up to 10% copper and 10% zinc.

Geologically all of these prospects occur in a belt of favorable rocks, which extends across the southern end of the proposed park. It is my belief that important mineral deposits exist within this zone and that if exploration is allowed the area will become an important source of domestic metals production.

Along the northern boundary of the park proposal a belt of Paleozoic sedimentary rocks has excellent potential for the occurrence of copper, lead, zinc, silver deposits. The mineral potential of these rocks was recognized after the D-2 withdrawal and no prospects have been identified due to lack of exploration activity. Major lead, zinc, silver deposits have been found in these rocks west and east of the park proposal. The committee will be informed of these deposits at another time during this hearing.

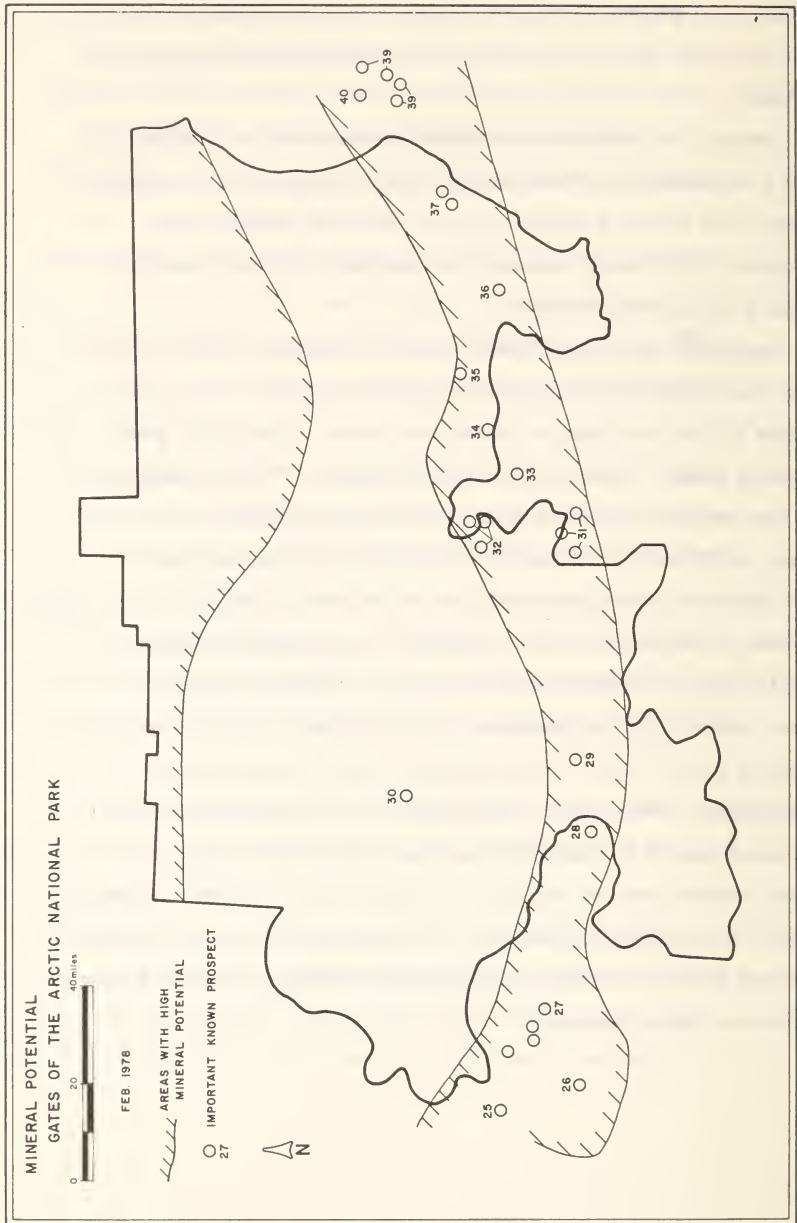
I would like to point out that the most dramatic scenic resource of the park proposal - the Arrigetch Peaks, lies outside of these two important mineral zones.

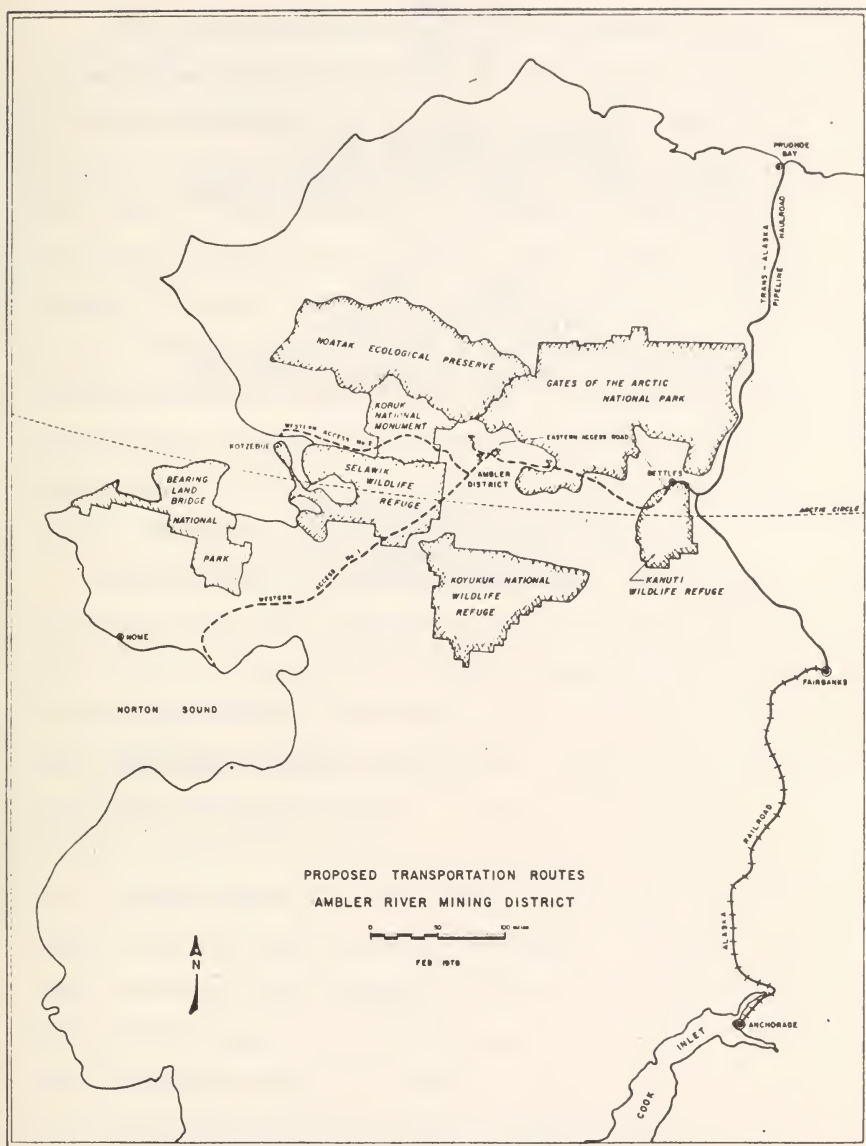
I would like to call to the committee's attention how the various park proposals for Northwest Alaska will effectively lock-up the Ambler District - the largest known mineral resources in Alaska. The gross metal value of the known mineral deposits in the Ambler District at

current metal prices, 6.3 billion dollars. None of the deposits have been completely tested by drilling and additional values will assuredly be found.

Because the deposits of the Ambler District were known at the time of D-2 withdrawals, they were omitted from the proposed park boundaries. However, the planned parks have cut-off all of the natural access corridors to the mineral deposits, and completely isolated them from Alaska's transportation system.

During 1977 my company hired a group of independent consultants to study the feasibility of mining in the Ambler District. This group studied all possible means of transporting minerals out of the area including roads, barges, railroad, and airfreight. Their recommendation was that the most economical transportation system out of the area was a road to the east connecting with the Alyeska pipeline haul road. Less desirable surface access would be to the west to Kotzebue or the Golovin Bay area of the southern Seward Peninsula. The attached map shows the relation of these transportation corridors to the park proposals. If access corridors are not guaranteed in the D-2 legislation the nationally important mineral deposits of the Ambler District most-likely will not be developed. This would cost the Alaskan economy approximately 1800 year-round jobs at the minesite, hundreds of millions of dollars in support expenditures and the State of Alaska would be denied a significant income via the mining license tax. It is certainly in the best interest of Alaska and to the United States balance of payments to assure access corridors to these deposits.





TESTIMONY

ON THE

MINERAL RESOURCES OF THE
PROPOSED CAPE KRUSENSTERN NATIONAL MONUMENT

GIVEN TO THE
UNITED STATES SENATE
COMMITTEE ON ENERGY AND NATURAL RESOURCES

BY

DAVID A. HEDDERLY-SMITH
SENIOR GEOLOGIST
GREATLAND EXPLORATION, LTD.
ANCHORAGE, ALASKA

February 20, 1978

I was asked about ten days ago to prepare a brief presentation for you outlining the known mineral resources of the area proposed for the Cape Krusenstern National Monument. Total area involved in the proposals, including the lands of Alternative "B", is roughly a half million acres, and with an area as large as this, I had initially planned on simply giving you a "shopping list" of the various prospects which had been identified within the proposed monument and then spending a few minutes elaborating on the potential for additional mineral deposits as suggested by the nature of the known prospects and the general geology of the area.

However, when I started my research, I was a bit surprised. The known metallic mineral prospects within this half-million-acre area can be counted on the fingers of one hand! Further, available geologic mapping of the area is only of a most reconnaissance nature, and published government geochemical data is from an ERDA sampling program at a density of only one sample per nine-section area (or one sample per 5700 acres -- less than 100 total samples for the whole half-million acres). Industry has done very little work within the area since 1972 because most of the ground has been withdrawn from mineral entry under Section 17 (d) (2) of ANCSA, and only minor exploration had apparently been done by industry prior to 1972.

In short, very little is currently known about the mineral resources of this area, and I will be spending the bulk of my time today describing the geology and potential mineral resources rather than the known mineral resources of the area proposed for the national monument.

There is, however, one geographic resource within the area proposed for the monument which will be sorely missed by the minerals industry should the monument be established. This is a potential dock site west of the Kakagrak Hills in T.22N., R.23W. which is the only locality where bedrock reaches the coast of the Chukchi Sea between Kotzebue and Point Hope and may be the only potential deep water port for the future shipment of ores from the mineral deposits of the Western Brooks Range. Transportation to market of ores from the Red Dog prospect and associated deposits in the De Long Mountains will be a significant problem should the continued exploration of these prospects be successful; lack of an available deep water port can only adversely affect the eventual development of these resources.

A brief description of the general geologic setting of the area is in order before discussing the known prospects.

The general trend of outcrop patterns and apparent regional strike of the rocks in the Noatak River-Cape Krusenstern area is northeast-southwest, but this is complicated considerably by the overthrusting of two or

more tectonic events. These large thrust sheets are the dominant structural feature of the area, and deformation and differential erosion of the sheets makes a clear-cut interpretation of the geology difficult with the present lack of detailed mapping.

The oldest rocks identified within the area are the predominantly carbonate sediments of the Baird Group of Devonian age. In many places the Baird carbonates have been thrust over the predominantly clastic sediments of the Late Devonian and Early Mississippian Endicott Group. Mississippian carbonates and cherts of the Lisburne Group stratigraphically overlie the Devonian rocks but often are structurally below them because of the overthrusting of the older rocks. A narrow strip of post Mississippian sedimentary rocks probably ranging in age from Permian through Jurassic is found east of the Noatak River. A discontinuous band of Cretaceous graywackes and mudstones overlie the Permian through Jurassic sediments.

Permian, Triassic and Jurassic mafic and ultramafic volcanic and intrusive rocks form the final mapped bedrock unit in the area of the proposed national monument. These generally occur as tectonic slices along the thrust faults.

Quaternary alluvial and glacial deposits cover the broad valleys in the area. Although no sediments with ages intermediate between Mesozoic and Quaternary have

been noted in the reconnaissance mapping in the area, geophysical data strongly suggests that older Cenozoic sediments may locally underlie the alluvial cover (Barnes and Tailleux, 1970).

As mentioned before, the known metallic mineral prospects within the area proposed for the Cape Krusenstern National Monument are few.

Twenty placer claims were staked in 1967 on both sides of the Noatak River in the Nauyoaruk area. Although these claims have since been allowed to lapse, it is interesting to note that they are at one end of an elongate tin geoghemical anomaly shown in the ERDA sampling (Sharpe, 1977). However, the apparent lack of acid intrusives in the area suggests that the existence of a significant tin resource would be unlikely.

Mafic intrusive rocks mapped in the Kasurok Mountain area in the southern portion of the area proposed for the national monument are associated with a chromium geochemical anomaly identified in the ERDA sampling (Sharpe, 1977). Chromite occurrences in this terraine would probably be similar to numerous other showings in ultramafic rocks associated with ophiolite complexes in the Western Brooks Range.

Near the headwaters of Rabbit Creek in T.26N., R.21W., a lead-zinc-silver occurrence has been discovered in recent years in rocks mapped as part of the Endicott Group. No data is presently available on the geologic

nature of this showing, but its occurrence may be very significant in conjunction with recent discoveries of lead-zinc-silver mineralization in the De Long Mountains 40 miles north-northeast of the Rabbit Creek prospect.

Other known mineral occurrences in the 1 : 250,000 scale Noatak quadrangle include: four placer gold claims staked on the Kivalina River in 1970 (T.28N., R.26W.) which have since lapsed; some reported chromite occurrences in the Asik Mountain area; and a prospect on Ikalukrok Creek (T.30N., R.20W.) a few miles southwest of the Red Dog prospect area on which 228 lode claims were staked in 1976. These claims on Ikalukrok Creek are apparently located on the same geologic units as the Red Dog prospect and probably cover another lead-zinc-silver occurrence.

Hundreds of claims have reportedly been located during the past year in the Red Dog area of the De Long Mountains quadrangle and probably also in the area of the Noatak quadrangle immediately to the south, but no effort has been made during this study to determine the exact location of these claims staked in 1977.

The potential for undiscovered mineral resources in portions of the area proposed for the national monument appears to be quite good.

Uranium deposits may be present in the suspected Cenozoic sediments which would underlie the alluvium in the broad valleys of the area although a source rock

for potential sedimentary uranium mineralization in these rocks is not obvious. A significant amount of geophysical work followed up by extensive drilling would probably be needed to establish this resource, and land withdrawn for Native selection in the Noatak River valley to the east appears to hold better potential for possible uranium mineralization than any of the land proposed for the national monument.

Of significantly greater importance is the possibility of lead-zinc-silver mineralization similar to that recently discovered in the De Long Mountains immediately to the north. The deposits in the Red Dog area of the De Long Mountains occur in a "window" through a thrust plate of Mississippian Lisburne Group and Devonian and Mississippian Endicott Group rocks. The deposits themselves occur in a map unit of cherts, carbonates and shales of Mississippian to Triassic age which includes rocks of the Mississippian Lisburne Group, the Permian Siksikpuk Formation and the Triassic Shublik Formation. Stratabound sulfide-barite deposits at Red Dog are generally associated with cherty sediments; it is not known (to this geologist, at least) whether these cherty sediments belong to the Lisburne, the Siksikpuk or the Shublik.

The Mulgrave Hills in the northern portion of the area proposed for the Cape Krusenstern National Monument may possess a geological environment similar if not identical to that in the Red Dog area 40 miles to the

northeast. In the compilation of U.S.G.S. mapping clastic sediments of the Endicott Group form a continuous outcrop striking from the Mulgrave Hills to the Red Dog area where the Endicott sediments, along with Lisburne carbonates, are shown as the upper plate of the thrust overlying the ore-bearing rocks. This thrusting, which is shown in the mapping of the southeast portion of the De Long Mountains quadrangle (Tailleur, 1970), is not shown on the more reconnaissance mapping of the Noatak quadrangle (Barnes and Tailleur, 1970, and Grybeck et al., 1977). It is almost certain that the thrust fault extends southwestward past Sivukat Mountain, and it is similarly likely that the thrust may extend further southwestward and may form the geologic contact between the Endicott and the Lisburne along the north flank of the Mulgrave Hills.

If the Lisburne is overlain here by the same units as are in the Red Dog area (the Siksikpuk and the Shublik Formations), there is a possibility for similar mineralization. (It should be noted that mapping in the De Long Mountains quadrangle and the staking of the 228 claims on Ikalukrok Creek strongly suggests that the Lisburne-Siksikpuk-Shublik rocks do indeed occur in the Noatak quadrangle although they are not shown in the reconnaissance mapping. They may similarly be present in the Mulgrave Hills area although they have not been mapped there.) The reported lead-zinc-silver showing at the head of

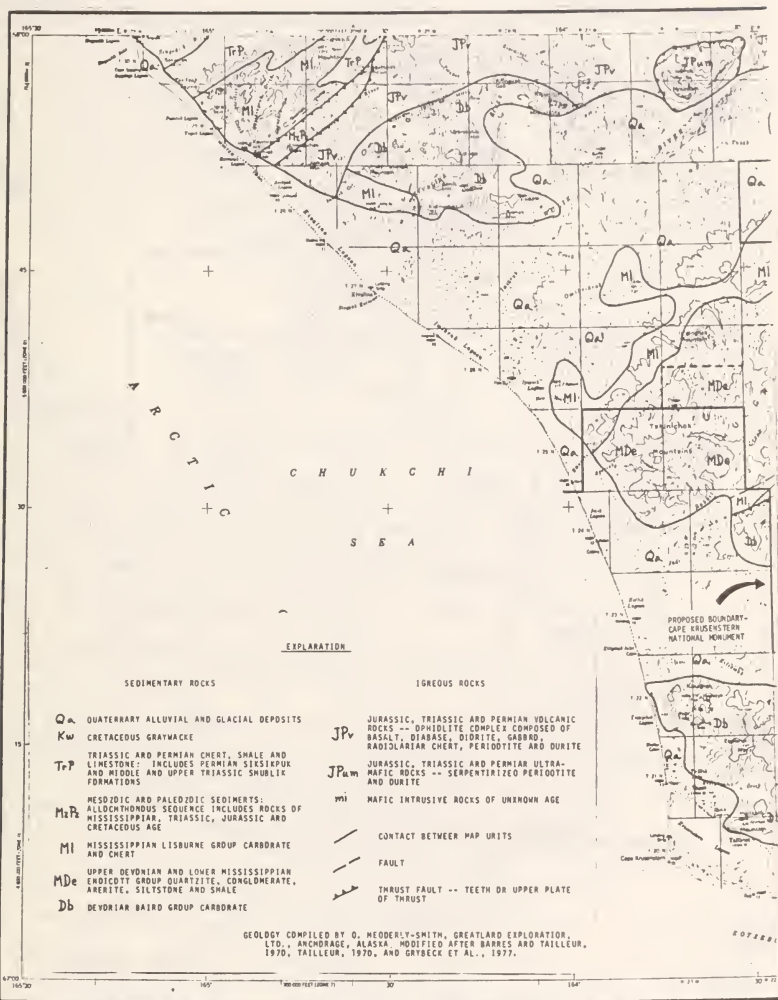
Rabbit Creek could possibly be a stratabound sulfide occurrence in these Lisburne-Siksikuk-Shublik rocks in a window through the thrust.

In closing, to say that deposits similar to the Red Dog prospect may occur in rocks mapped as Lisburne and Endicott Group sediments in the Mulgrave Hills in the northern portion of the area proposed for establishment of the Cape Krusenstern National Monument is, at best, supposition based on weak geologic knowledge of the area. Still, the model for these potential mineral occurrences appears to be sound based on the limited geologic data available. Only continued exploration in the area will determine whether or not significant mineral deposits are present.

I would strongly advise that this particular area not be included in the national monument until its mineral resource potential has been adequately assessed. Geologic mapping and sampling to date has only been of a most reconnaissance nature, and although the quality of the work appears to be excellent, much more detailed studies are needed to properly evaluate the area's mineral potential.

Respectfully submitted,

David A. Hedderly-Smith
GREATLAND EXPLORATION, LTD.
Senior Geologist



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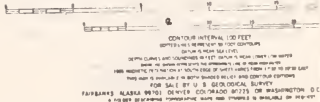
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MAP 1:500,000

SCALE = 1 : 500,000



NOATAK

ALASKA
TOPOGRAPHIC SERIES

FOR
2-20-78-PM
AMT

STATEMENT BY R. H. RUSSELL
TO THE
SENATE COMMITTEE ON ENERGY
AND NATURAL RESOURCES

February 20, 1978
Anchorage, Alaska

Gentlemen:

Cominco American Incorporated of Spokane, Washington, has been actively engaged in minerals exploration in the western DeLong Mountains of the Brooks Range, Alaska since September, 1975. To date, Cominco American Incorporated has spent about \$1,000,000 for mineral exploration. The exploration has determined that DeLong Mountains may contain very large mineral reserves of lead and zinc with associated major concentrations of silver and cadmium. This statement is based on the drilling results of Cominco American Incorporated and General Crude-Houston Oil and Minerals on d-1 land and field evidence found by geologic parties of the United States Geological Survey and United States Bureau of Mines on d-2 and Pet-4 land.

The metal deposits occur within a black shale that outcrops throughout the DeLong Mountains. Mineralized black shales have been sampled by various geologic parties throughout a 150 mile arcuate belt that begins about 40 miles west of the Red Dog

Prospect on d-1 land, trends northeastward across the north part of the Noatak Ecological Preserve, and continues to the east of the Drenchwater Show on Pet-4 land (see attached map).

Known metal concentrations of probable economic quantities are Red Dog, the General Crude-Houston Oil and Minerals discovery, and Drenchwater. In addition, Cominco American Incorporated has drilled two other mineralized areas.

The Red Dog Prospect, located just inside the d-1/d-2 boundary, is, we think, a major lead-zinc-silver deposit. Surface geologic studies conducted by Cominco American Incorporated through a permit granted by the BLM have determined that the mineralization is located primarily within the upper part of the black shale unit. Based on surface mapping and geochemical and geophysical testing, the deposit may contain 15 million tons of 15 to 20% lead and zinc and 3 ounces per ton of silver.

The drill discovery by General Crude-Houston Oil and Minerals is located about 12 miles northwest of the Red Dog. Mr. Riz Bigelow of WGM has discussed the discovery in detail. Based on information released to date, it is a discovery of major proportions. General Crude/HOM hold about 8,000 Federal mining claims in the area.

Cominco American Incorporated holds two thousand Federal mining claims west of Red Dog on d-1 land. During 1977, over 3,200 feet of drilling was completed. Drill results indicate

additional mineralized areas are present. However, further drilling is required to better define the areas. Cominco American Incorporated has determined by detailed geologic mapping and extensive reconnaissance mapping that the mineralized black shale belt continues for several tens of miles into the northern part of the Noatak Ecological Preserve.

The Drenchwater Show was examined by the U.S.G.S. and the U.S.B.M. The results of this study will be submitted to the Senate Committee.

It is recommended that the western edge of the Noatak Ecological Preserve along the d-1 boundary and the northern edge south of Pet-4 be opened for mineral entry. The area would be a corridor two or three townships wide involving about 800,000 acres of land and would include a large portion of the black shale belt. It is also recommended that the mineral potential of the entire Noatak National Ecological Preserve be thoroughly evaluated before the land is closed forever.

The presence of large amounts of valuable metals within the Ecological Preserve is a reality. It is also a reality that our present supply of strategic metals, like our oil reserves, is finite. We cannot afford to lock away our future metal reserves.

R. H. Russell, Supervisory Geologist
Cominco American Incorporated
E. 15120 Euclid
Spokane, WA 99216

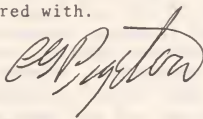
WGM INC

The Bureau program did turn up positive results, particularly at Red Dog Creek where we first recognized significant massive sulfide potential. Press releases were followed by additional discoveries. The Red Dog environment potential may be greater than that of the Ambler mineral district, but it is mostly on D-2 land.

d-2 land
The 150¹/₄ miles between Red Dog and the Ambler mineral district has known potential for high grade copper, zinc, lead, silver, and barite, and favorable environment for short-supply commodities, including nickel, platinum, tungsten uranium and minor metals.

The Brooks Range contains one of the worlds greatest metals provinces. We know of no district in the United States, and possibly the world, that shows comparable tonnage/grade configurations.

Development of the mineral potential on remote D-2 Federal lands, such as in the Brooks Range, could provide funding through current taxation practices that would support the acquisition and development of wild areas where they should be - near the people. Such a policy would at the least reduce the 15 to 25% unemployment rate that Alaskans presently are encumbered with.



March 5, 1978

Wilbur Mills
Natmaktugaiq
Ambler, Alaska 99786

Energy & Natural Resources Committee
U.S. Senate
Washington, D.C. 20510

Re: Supplementary comments to D-2 Anchorage workshop

My comments deal with the western portion of the Gates of the Arctic park proposal, specifically the upper Ambler River and adjacent drainages. The park boundary as proposed by the Alaska Coalition and also in the original Interior Department legislation (Morton Bill) encompassed the Ambler River valley north of township 22N, Range 9E. In the Andrus proposal and in the House subcommittee bill (print 3), the boundary has been shifted northward several miles and now cuts across the valley above the junction of Ulaneak Creek with the Ambler River.

Thus the lower 8 miles of Ulaneak Creek (nearly one-half of its drainage) and 6 miles of highly scenic country in the Ambler valley have been deleted from the park. The reason for the deletion apparently was to avoid conflict with mineral claims. Yet an examination of claims in the area reveals that in 1977 all were dropped with the exception of one small, contiguous group, which lies on the north side of Ulaneak Creek about 5 miles above its mouth. The potential of this claim is still uncertain and the claimant has shown only mild interest in it.

It seems that to exclude these valuable lands from the park because of one mining claim is clearly not in the public interest. The Ambler valley forms the logical gateway to the western portion of the park proposal. It is the largest tributary of the Kobuk River draining the south slope of the Schwatka Mountains and hence, is the best float stream in an area where the rivers are relatively small. The Bureau of Outdoor Recreation studied the Ambler for a wild river and found it exceptional. In contrast to the other south flowing rivers of the Schwatka Mountains, the Ambler offers excellent hiking, being relatively free of heavy brush and having extensive, smooth gravel bars along its course. In a distance of less than 60 miles a hiker can walk from the lowland spruce forest of the Ambler Lowland, through the upland forest at the head of the river, across the alpine tundra of the divide and descend to the moist tundra of the Noatak valley. This represents a wide range of ecological types compressed into a relatively short distance - a unique asset of this area not found in other parts of the park proposal.

The Ambler River and Ulaneak Creek provide good access to no fewer than seven outstandingly scenic valleys of the upper Noatak. Nearly all of the Schwatka Mountain-upper Noatak region

March 5, 1978

Energy & Natural Resources Comm.

is accessible over easily negotiable passes at the head of the Ambler and its tributaries.

The boundary proposed by the Alaska Coalition includes within the park all of Ulaneak Creek and the best part of the Ambler valley. It is at that boundary that the geology of the region changes markedly, dramatic limestone mountains lying to the north and the so called "schist belt" lying to the south. It is within the schist belt that the highest mineral potential and all of the rich, proven mineral claims occur. All of these claims are excluded from the park in the Alaska Coalition's proposal.

Given the location of the existing, proven claims an access road need not be built up the Ambler valley to develop them. If, however, the upper Ambler and Ulaneak Creek are left open to staking, the possibility of an access road in the valley is greatly increased. This is an extremely important point to consider. An exceptional mountain valley could be despoiled and the wilderness values in the entire western portion of the Gates of the Arctic park degraded. In view of this and of the outstanding scenic and recreational values of the upper Ambler, I strongly urge that the Alaska Coalition's boundary be retained.

Wilbur Mills

Wilbur Mills

[In addition to the following mineral information, several U.S.G.S. open file reports for various regions of Alaska were presented at the workshops and have been retained in the committee files. In addition Robert Frankhauser and Barry Hoffman of the Alaska Miners Association submitted more detailed information on a township-by-township basis regarding Alaska mineral resources and potential. This information has likewise been retained in the committee files.]



ALASKA MINERS ASSOCIATION, INC.

C.C. Hawley
Executive Director
SRA Box 78D
Anchorage, Alaska 99507
(907) 344-5354

March 2, 1978

James A. Hamilton
President

Carl Heflinger
Vice President

Irene Ryan
Secretary Treasurer

Mr. Tom Williams, Staff
Senate Committee on Energy and Natural Resources
Washington, DC 20510

Dear Tom:

Branch Chairmen

Anchorage
Howard Grey
715 L Street No. B
Anchorage, AK 99501

Sitka
Gordon Whitcomb
P.O. Box 990
Sitka, AK 99835

Juneau
J.P. Tangen
Box 1684
Juneau, AK 99802

Fairbanks
Ernest Wolff
P.O. Box 809B9
Fairbanks, AK 99701

Ketchikan
Keldon Adams
Box A 2B
Ward Cove, AK 99928

Enclosed is a document which incorporates most of the mineral information presented in the Senate workshops.

It also is the material presented in map form to the House Subcommittee through Bill Horn. To make it more useable, we have added a brief geologic introduction and have broken down the tabular material so it corresponds to the maps.

It was good to see you. I plan to be in DC March 23rd for some kind of environmental workshop. If it's close to Senate hearings, I will stay over.

Sincerely,

C. C. Hawley
C. C. Hawley

ams
Enclosure a/s

SIGNIFICANT MINERAL DEPOSITS AND
ANOMALIES, ALASKA

COMPILED BY

ALASKA MINERS ASSOCIATION
NORTHWEST MINING ASSOCIATION

FEBRUARY 1978

NORTHWEST MINING ASSOCIATION, WEST 1020 RIVERSIDE AVENUE
SPOKANE, WA 99201

ALASKA MINERS ASSOCIATION, STAR ROUTE A - BOX 78D
ANCHORAGE, AK 99507

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INTRODUCTION

"Significant mineral deposits and anomalies, Alaska" summarizes information about more than 220 mines or prospects in Alaska. Maps accompanying the report also show the location of hundreds of additional claims and occurrences and the location of geochemical and geophysical anomalies. Much of the information is from industry sources.

Map data are presented on a series of five figures covering all of Alaska except the outer Aleutian chain.

Figure 1 ---- Southwestern Alaska

Figure 2 ---- Alaska Peninsula

Figure 3 ---- Southern (southcentral or eastcentral)
Alaska

Figure 4 ---- Southeastern Alaska

Figure 5 ---- Northern Alaska

Descriptions of the more significant deposits, production, or reserves, are in correlative tables.

CLASSIFICATION OF DEPOSITS

In terms of the present or near future economic viability for hard rock deposits in Alaska, two major types of deposits are dominant--namely, the porphyry and stratiform types.

Porphyry-type deposits occur in or near granitic igneous rocks. The minerals are disseminated throughout the granitic rocks and their walls in such a way as to constitute compact bodies of ore. The porphyry-type deposits are, in general, low grade containing from about 4 to 20 pounds of valuable metals per ton. They are economic because they can be mined inexpensively by either underground or open-cut bulk mining methods. Contained metals are commonly copper or molybdenum and, more rarely, gold, silver, uranium, tin, and tungsten.

The stratiform deposits are of varied origin, but occur as layers formed, in most cases, as chemical sediments in ancient ocean basins. Many are formed in relation to submarine volcanic processes and are termed volcanogenic. Contained metals are commonly lead, zinc, and copper, with significant amounts of silver and gold. Grades are commonly high, with the valuable metals exceeding 10 percent, or 200 pounds of valuable metal per ton.

Another significant type of deposit is of basic magmatic-type, forming as segregations in and near basic (dark magnesian and iron-rich) igneous rocks. These deposits typically contain

iron, titanium, chromium, copper, nickel, and the platinum metals. Many of Alaska's past productive mines have been of the massive sulfide stratiform type. Many of the smaller mines has exploited fissure vein deposits.

Current production is from one stratiform deposit (Castle Island Barite) and from about 200 mines--mostly very small--which produce gold (and more rarely tin) from secondary placer deposits derived by erosion of primary vein, stratiform, or porphyry deposits.

DISTRIBUTION OF DEPOSITS

Three major mineral provinces and several minor provinces can be tentatively identified in Alaska (figure A). The Pacific Rim province is an arcuate zone containing several distinct mineral belts which crudely parallels the Gulf of Alaska. It is the direct continuation of Cordilleran mineral belts, which can be traced almost continuously along the western margin of the North and South American continents. In Alaska the province trends northwesterly from Southeastern Alaska into the central interior, where it turns westerly, then southwesterly through the Southern Alaska Range, Alaska Peninsula, and Aleutian Chain.

The Arctic province trends westerly across northern Alaska from the Canadian border to the western end of the Brooks Range where it probably swings southwesterly into the Seward Peninsula. It includes the Ambler copper belt on the south side of the Brooks Range, and a newly-recognized belt on the north flank, which contains major deposits of lead, zinc, silver, and barite--as well as metal-rich phosphorites and oil shales. The Arctic provinces continue southeasterly into northern Canada and westerly into Siberia.

The Central province includes the hard rock provinces which flank the Yukon-Koyukuk basin. It is less well known than the Pacific Rim and Arctic provinces, but includes the

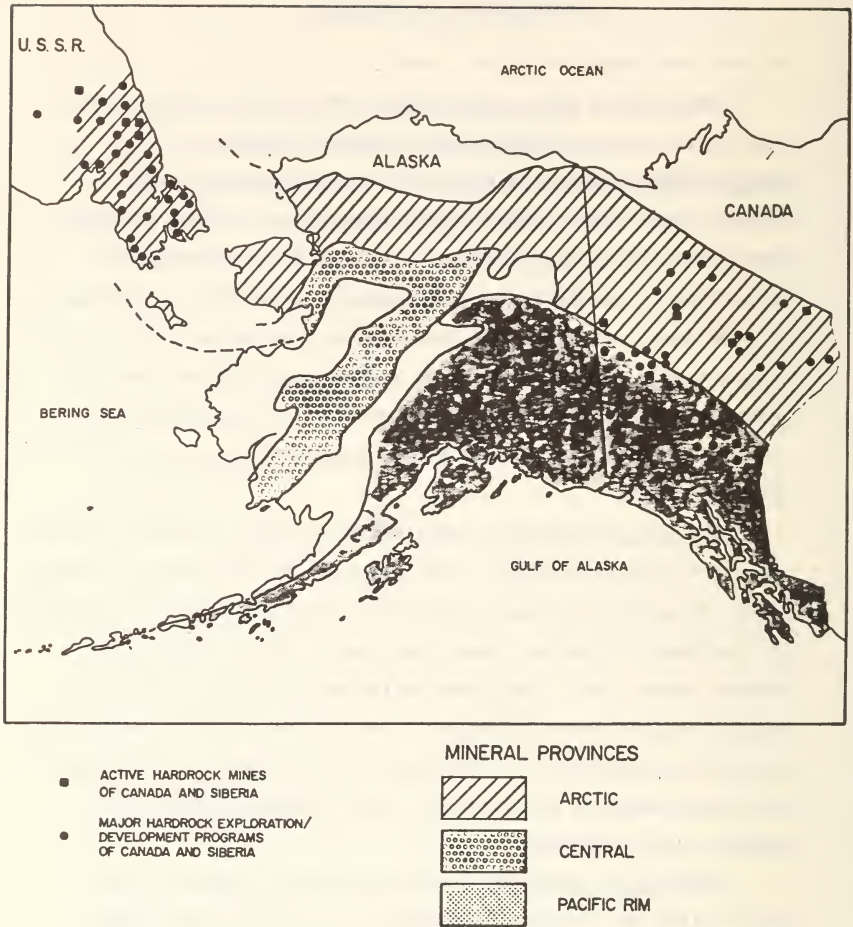


FIGURE A. DISTRIBUTION OF MAJOR HARD MINERAL PROVINCES OF ALASKA, CANADA, AND SIBERIA

major belt of gold deposits which is within the Yukon-Kuskokwim mineral belt, and much of the highly radioactive Hogatza plutonic belt.

DEPOSITS AND ANOMALIES OF ALASKA

WESTERN ALASKA (Figure 1)

Most of the significant prospects and anomalies of Western Alaska are in the Yukon-Kuskokwim belt of the Central province, and in the southern Alaska Range portion of the Alaska Range mineral belt, a major belt of the Pacific Rim province.

The Yukon-Kuskokwim belt (table 1) is one of the three most active placer gold regions in Alaska, with important current production from Ruby-Long (no. 92), Ophir or Innoko (no. 97), Flat (no. 96), and Nyac (unnumbered). Mercury has been produced from two mines of the area in the last ten years, and the major platinum producer of the United States, Goodnews Bay (no. 102), was active until 1976 and will be active on a small scale in 1978.

The Alaska Range belt is inactive for production, but contains many active prospects. The belt contains the major Kasna Creek (no. 150) copper and molybdenum deposit, and a series of major molybdenum prospects. Several deposits, including no. 166, contain high-grade silver-tin deposits.

TABLE 1

SIGNIFICANT MINERAL DEPOSITS AND
ANOMALIES IN WESTERN ALASKA

NO. (FIGURE 1)	NAME AND REMARKS
47-74	PROSPECTS OF THE SEWARD PENINSULA AND HOGATZA PLUTONIC TREND. SEE TABLE 5.
92	RUBY-LONG PLACER AU-SN DISTRICT (ACTIVE); PRODUCED ABOUT 390,000 OZ AU BETWEEN 1931 AND 1960; DISTRICT ALSO CONTAINS A PB-AG PROSPECT (92A) WITH UP TO 82 OZ/TON AG (POTENTIAL FOR SIGNIFICANT STRATABOUND MASSIVE SULFIDE DEPOSITS).
96	FLAT DISTRICT PRODUCED 1,350,000 OZ AU; DISTRICT IS CURRENTLY ACTIVE WITH MODERATE PLACER RESERVES; POTENTIAL FOR VERY LARGE RESERVES OF LODE AU (ROCK SAMPLES CONTAIN UP TO 0.5 OZ/TON AU OVER 30'); AREA ALSO CONTAINS SOME MERCURY AND ANTIMONY, AND SIGNIFICANT TUNGSTEN MINERALIZATION.
97	PLACER AU DISTRICT WITH SIGNIFICANT LODE AU-SB-HG MINERALIZATION; PRODUCED MORE THAN 540,000 OZ PLACER AU. CURRENTLY ACTIVE.
98	MAJOR LODE AU-CU DISTRICT; ONE MINE PRODUCED BETWEEN 40,000 AND 60,000 OZ AU. URANIUM PRESENT IN SKARN; TIN-TUNGSTEN POTENTIAL, AND EXTENSIVE PLACER RESERVES.
99	SLEETMUTE MERCURY (HG) DISTRICT; ONE MINE PRODUCED 28,061 FLASKS OF HG BETWEEN 1940 AND 1961.
99A	CINNABAR CREEK MINE. MAJOR MERCURY MINE. PRODUCTION THROUGH 1975 IN EXCESS OF 10,000 FLASKS.
100	MAJOR TITANIFEROUS MAGNETITE (Fe) DEPOSIT IN ULTRAMAFIC INTRUSION; RESERVES OF SEVERAL BILLION TONS OF 10.5 TO 12% MAGNETIC Fe.

TABLE 1 (CONTINUED)

NO.	NAME AND REMARKS
101	PLACER AU DISTRICT; SOURCE OF AU MAY BE PRECAMBRIAN CONGLOMERATES WITH ASSOCIATED URANIUM TYPICAL OF THE WORLDS LARGEST KNOWN DEPOSITS.
102	GOODNEWS BAY PLATINUM (PT) PLACER DISTRICT; ESTIMATED TO HAVE PRODUCED WELL OVER 500,000 OZ OF THE PLATINUM-GROUP METALS BETWEEN 1934 AND 1976; THE ONLY COMMERCIAL SOURCE OF PT METALS IN THE UNITED STATES; RESERVES OF APPROXIMATELY 40 MILLION CUBIC YARDS.
123	SHELLABARGER PASS AREA; STRATABOUND MASSIVE SULFIDE CU-ZN-PB-AG PROSPECT WITH GRADES OF ABOUT 2% CU EQUIVALENT; ACTIVE CLAIMS.
124	SIGNIFICANT DISSEMINATED CU-NI-AU MINERALIZATION; DISCOVERED IN 1976.
125	SIGNIFICANT MASSIVE SULFIDE CU-AG-AU OCCURRENCE; DISCOVERED IN 1976; GRADES OF UP TO 33.5% CU AND 41 OZ/TON AG REPORTED.
126	BOULDER CREEK (PURKEY) AREA; SIGNIFICANT AG-SN-BE MINERALIZATION ASSOCIATED WITH GRANITIC INTRUSIONS; GRADES OF UP TO 4.5% SN OVER MINING WIDTHS; AREA ALSO HAS URANIUM AND TUNGSTEN POTENTIAL.
127	SIGNIFICANT MASSIVE AND DISSEMINATED CHROMITE OCCURRENCES ASSOCIATED WITH ULTRAMAFIC INTRUSIONS; DISCOVERED IN 1975 BY USGS.
145	PORPHYRY MO PROSPECT ASSOCIATED WITH INTRUSIVE BRECCIA PIPE.
146	SIGNIFICANT STRATIFORM CU OCCURRENCES; MINERALIZATION IN BASIC VOLCANICS OCCURS OVER SEVERAL SQUARE MILES WITH UP TO 2-5% CU.
147	PORPHYRY-TYPE CU-MO MINERALIZATION IN INTRUSIVE COMPLEX; UP TO 3.3% CU IN VEINLETS.
148	MAJOR STRATABOUND MASSIVE PB-AN-AG-AU-BARITE MINERALIZATION IN FELSIC VOLCANICS AND TUFFS; CONSISTENT GRADES OF 1% CU, 2% PB, 1-5% ZN, 0.75 OZ/TON AG, 0.03-0.09 OZ/TON AU AND 15-30% BARITE REPORTED; POTENTIAL FOR MAJOR DEPOSIT.
149	STRATIFORM MASSIVE SULFIDE CU PROSPECT; MASSIVE PYRITE WITH SEVERAL PERCENT CU; PROSPECT SIMILAR TO THAT OF MAJOR DEPOSIT AT LOCALITY 150.
150	KASNA CREEK; MAJOR STRATIFORM MASSIVE SULFIDE DEPOSIT; PROVEN RESERVES OF GREATER THAN 10 MILLION TONS OF GREATER THAN 1% CU; POTENTIAL FOR GREATER THAN 30 MILLION TONS OF GREATER THAN 1% CU; OTHER CU, PB, AND ZN OCCURRENCES IN AREA HAVE SIMILAR POTENTIAL.

TABLE 1 (CONTINUED)

NO.	NAME AND REMARKS
151.	Massive iron skarn deposits; grades of 10-30% Fe_3O_4 common; local rock samples contain up to 13% Zn, 6.6% Cu, and 10 ppm Ag.
152.	Significant porphyry Cu mineralization in volcanic-intrusive complex; stream sediments samples over several square miles are strongly anomalous in copper (360-1250 ppm).
153.	Significant porphyry Cu-Ag prospects; strongly leached rocks contain up to 0.3% Cu, 14 oz/ton Ag, 0.15% Pb and 0.36% Zn over mineralized zones in excess of 500 feet wide and 2000 feet long.
154.	Significant stratabound massive sulfide Cu-Ag-Au deposits with 3-4% Cu; deposits are similar to those in the Ambler Mineral Belt in the Brooks Range (localities 25, 27 and 28).
155.	Significant porphyry Cu-Mo mineralization; grades of 1-5% Cu reported.
156.	Stratiform massive sulfide Cu mineralization; grades of 1-3% Cu reported; mineralization similar to major deposit at locality 150.
157.	Significant porphyry Mo prospects; grades of up to 0.32% Mo in rocks and 200 ppm Mo in stream sediments reported; potential for large low-grade Mo deposits.
158.	Significant porphyry Cu-Mo mineralization in intrusive complex; grades of up to 0.88% Cu and 0.33% Mo reported; potential for large low-grade Cu-Mo deposit.
159.	Major porphyry Mo occurrences; assays of mineralized rocks range from 0.1 to 2% Mo; some occurrences have associated Cu, Pb (up to 2%), and Zn (up to 1.85%).
160.	Area of very strongly anomalous Mo (25 to 960 ppm) in stream sediment samples; indicative of significant porphyry Mo mineralization.

TABLE 1 (CONTINUED)

NO. NAME AND REMARKS

161. Porphyry Cu mineralization in altered intrusion.
162. Porphyry Cu mineralization in tourmalinized intrusion; grades of around 1% Cu common; potential for large low-grade deposit.
163. Porphyry-type Cu mineralization and stratiform massive sulfide prospects; grade of 1 to 3% Cu reported in intrusions; massive sulfide prospects contain up to 13% Zn and 5% Cu; active claims and drilling; potential for significant deposits.
164. Porphyry Cu mineralization; grades of around 1% Cu reported.
165. Area contains several major porphyry Mo-Cu prospects; grades of 0.5 to 1% Mo with important credits of Au (up to 0.75 oz./ton) are common.
166. Complex Cu-Ag-Sn deposit; grades of up to 105 oz./ton Ag; grades in 30-foot drill intercept up to 37 oz./ton Ag and 3% Cu.
-
167. Porphyry Cu mineralization; average grade of about 0.6% Cu and 0.18 oz./ton Ag; skarn deposits adjacent to intrusion contain up to 22% Cu and 14 oz./ton Ag.
168. Porphyry Mo prospect; grades of up to 3% Mo reported; active claims.

ALASKAN PENINSULA (Figure 2 and Table 2)

The Alaska peninsula contains the southwestern continuation of the Alaska Range mineral belt of the Pacific Rim province. The deposits include many of the porphyry type, containing copper, molybdenum, and gold.

TABLE 2

SIGNIFICANT MINERAL DEPOSITS AND ANOMALIES
IN THE ALASKA PENINSULA

NO.	NAME OR REMARKS
100-102 AND 145-147, 149-150) 152-154, AND 156)	ALSO LISTED IN WESTERN AK. SEE FIG. 1 AND TABLE 1.
103.	Major lode Au deposit; produced about 100,000 oz. Au from are which averaged about 0.4 oz/ton Au.
104.	Porphyry Cu-Mo deposit; reserves of 100 million tons of 0.5% Cu and 0.03% Mo; strong stream sediment geochemical anomalies (up to 500 ppm Cu, 700 ppm Pb, 20 ppm Ag and 70 ppm Mo) several miles to the north suggest this area has similar potential for porphyry Cu-Mo deposits.
105.	Significant bituminous coal deposit; seams up to 30 foot thick; area also contains strongly anomalous stream sediments (up to 1000 ppm Cu, 1500 ppm Pb and 30 ppm Ag) indicative of porphyry Cu mineralization similar to that at locality 104.
106.	Porphyry Cu prospect; grades of up to 0.72% Cu reported; potential for large tonnages of low grade Cu mineralization.
107.	Porphyry Cu-Mo prospect; grades of up to 0.48% Cu and 0.035% Mo reported; potential for moderate tonnages of low grade Cu mineralization.
108.	Porphyry Cu prospect; grades of up to 0.56% Cu reported; potential for moderate tonnages of similar grade material.
109.	Porphyry Mo prospect; grades of up to 0.21% MoS ₂ in rocks and 350 ppm Mo in stream sediments reported; potential for large tonnages of low grade Mo mineralization.
110.	Porphyry Cu prospect; grades of up to 0.39% Cu reported; potential for moderate reserves of similar grade material; numerous stream sediment and color anomalies (gossans) indicative of porphyry Cu-Mo mineralization occur between localities 104 and 110;

SOUTHERN ALASKA (Figure 3 and Table 3)

Several major mineral belts are clearly defined in the southern Alaska region within the Pacific Rim prospect. From the south they include the Prince William Sound copper belt, which contains major stratiform massive sulfide deposits; the Kennecott copper belt; the Nabesna copper belt; and the Yukon-Tanana porphyry belt.

The McKinley area contains three major belts--Chulitna, Kantishna-Bonnifield, and the newly-recognized Dall Trend. The Chulitna and Dall trend are parts of the major Alaska Range trend recognized in western Alaska and the Aleutian Range. The Kantishna-Bonnifield belt is mainly a stratiform belt, with small rich vein deposits.

TABLE 3

SIGNIFICANT MINERAL DEPOSITS IN SOUTHERN
(SOUTH-CENTRAL OR EAST-CENTRAL) ALASKA

NO.	NAME AND REMARKS
76	LIVENGOOD; ACTIVE PLACER AND LODE AU DISTRICT; PRODUCED 380,000 OZ AU UP TO 1960; LARGE PLACER GOLD RESERVES REMAIN UNMINED.
80	MAJOR ASBESTOS DEPOSIT; POTENTIAL FOR LARGE RESERVES OF MINEABLE GRADE MATERIAL; ACTIVE EXPLORATION.
81	MT. PRINDLE AREA; RECENT DISCOVERY OF SIGNIFICANT URANIUM MINERALIZATION; ROCK GEOCHEM VALUES UP TO 0.1% U_3O_8 REPORTED; ACTIVE CLAIMS.
82	CIRCLE DISTRICT. NUMEROUS ACTIVE PLACER AU CLAIMS, URANIUM ANOMALIES (UP TO 0.06% URANIUM IN ROCK) AND TUNGSTEN MINERALIZATION.
83	FAIRBANKS MAJOR LODE AND PLACER AU DISTRICT WITH SIGNIFICANT TUNGSTEN MINERALIZATION; PRODUCED 239,247 OZ OF LODE AU AND OVER 7,000,000 OZ OF PLACER GOLD BEFORE 1960.
84	SEVENTYMILE DISTRICT; SIGNIFICANT AU LODE AND PLACER DEPOSITS; VALUES UP TO 0.3 OZ/TON AU IN ROCK REPORTED; POTENTIAL FOR LARGE RESERVES.
85	STRATABOUND (?) MASSIVE SULFIDE PB-ZN MINERALIZATION; GRADES OF UP TO 17% ZN AND 2% PB REPORTED.
86	TINDIR AREA; BEDDED IRON FORMATION WITH VALUES UP TO 27% FE.
87	STRATABOUND (?) MASSIVE SULFIDE CU-PB-ZN-AG MINERALIZATION; GRADES OF UP TO 1% CU, 5% ZN, 3% PB, AND 2 OZ/TON AG REPORTED.
88	AREA WITH SIGNIFICANT STREAM SEDIMENT AND SOIL GEOCHEMICAL ANOMALIES, POSSIBLY INDICATIVE OF STRATABOUND MASSIVE SULFIDE MINERALIZATION; VALUES UP TO 400 PPM CU, 300 PPM PB, 2000 PPM ZN, AND 20 PPM AG REPORTED.

TABLE 3 (CONTINUED)

NO.	NAME AND REMARKS
89	SIGNIFICANT STREAM SEDIMENT AND SOIL GEOCHEMICAL ANOMALIES; POSSIBLY INDICATIVE OF STRATABOUND MASSIVE SULFIDE MINERALIZATION; VALUES UP TO 200 PPM CU, 1000 PPM PB, 900 PPM ZN, AND 5 PPM AG REPORTED.
90	NUMEROUS ACTIVE PLACER AU DEPOSITS IN AREA; LODE AU DEPOSITS AND W MINERALIZATION ALSO OCCURS IN AREA.
91	SIGNIFICANT STRATABOUND MASSIVE SULFIDE PROSPECT; VALUES UP TO 0.52% CU, 2.5% PB, AND 5 OZ/TON AG IN OXIDIZED ROCK REPORTED; ACTIVE CLAIMS AND EXPLORATION.
92	SEE TABLE 1.
93	HOT SPRINGS PLACER AU-SN DISTRICT; PRODUCED ABOUT 450,000 OZ AU THROUGH 1960. PRODUCES TIN AS MAJOR BY-PRODUCT.
94-110	SEE TABLES 1 AND 2.
111	KANTISHNA DISTRICT. PLACER AU AND LODE AG-AU-PB-ZN-SB-W DISTRICT; PRODUCED ABOUT 50,000 OZ PLACER AU; LODE DEPOSITS VERY HIGH GRADE (AG GRADE AVERAGED 157 OZ/TON); POTENTIAL FOR SIGNIFICANT LOW-GRADE AG-AU-PB-ZN DEPOSITS; ACTIVE CLAIMS AND EXPLORATION.
112	STAMPEDE MINE; MAJOR ANTIMONY (SB) DEPOSIT; PRODUCED ABOUT 3.5 MILLION LBS SB; RESOURCES OF ABOUT 10 MILLION LBS SB; HIGHLY ANOMALOUS STREAM SEDIMENTS IN AREA (UP TO 1900 PPM ZN, 2200 PPM PB, 500 PPM CU, 3.0 PPM AG) INDICATIVE OF STRATABOUND MASSIVE SULFIDE DEPOSITS.
113	CHITSIA MOUNTAIN AREAS; SIGNIFICANT STRATABOUND MASSIVE SULFIDE BARITE-PB-ZN-AG OCCURRENCES; GRADES OF UP TO 3% PB, 1% ZN, AND 1 OZ/TON AG REPORTED IN OXIDIZED ROCK; MINERALIZED ZONES UP TO 6 MILES LONG AND 1/4 MILE WIDE; POTENTIAL FOR LARGE TONNAGES OF HIGH-GRADE MATERIAL; A MAJOR STRATABOUND MASSIVE SULFIDE BELT EXTENDS EASTWARD FROM THIS LOCALITY ACROSS THE ENTIRE NORTHERN ALASKA RANGE.
114	STRONGLY ANOMALOUS STREAM SEDIMENT SAMPLES (UP TO 650 PPM ZN AND 252 PPM PB); INDICATIVE OF SIGNIFICANT STRATABOUND MASSIVE SULFIDE MINERALIZATION SUCH AS THAT AT LOCALITIES 113 AND 115 (GEOLOGICAL ENVIRONMENT SIMILAR TO THAT AT LOCALITIES 113 AND 115).
115	BONNIFIELD DISTRICT; MAJOR STRATABOUND MASSIVE SULFIDE CU-PB-ZN-AG PROSPECT; GRADES OF UP TO 4% CU, 14.5% ZN, 6% PB AND 7.6 OZ/TON AG REPORTED; ACTIVE CLAIMS AND EXPLORATION.

TABLE 3 (CONTINUED)

NO. NAME AND REMARKS

- 116 BONNIFIELD DISTRICT AND EASTERN PROJECTION OF DISTRICT; SIGNIFICANT STRATABOUND MASSIVE SULFIDE CU-PB-ZN-AG PROSPECTS; POTENTIAL FOR LARGE, HIGH-GRADE DEPOSITS; ACTIVE CLAIMS AND EXPLORATION IN 1977.
- 117 AREAS OF STRONGLY ANOMALOUS STREAM SEDIMENT SAMPLES (UP TO 2000 PPM ZN AND 2100 PPM CU); INDICATIVE OF SIGNIFICANT STRATABOUND MASSIVE SULFIDE CU-ZN-PB-AG MINERALIZATION.
- 118 PORPHYRY CU-MO PROSPECTS; POTENTIAL FOR DISCOVERY OF SIGNIFICANT TONNAGES OF SUPERGENE ENRICHED ORE SUCH AS AT LOCALITY 120; ACTIVE CLAIMS AND EXPLORATION.
- 119 PORPHYRY MO PROSPECT; GRADES OF UP TO 0.17% MoS_2 REPORTED IN DRILL INTERCEPTS; ACTIVE CLAIMS AND EXPLORATION.
- 120 MAJOR PORPHYRY CU-MO PROSPECT; SUPERGENE ENRICHMENT OCCURS AT THIS PROSPECT AS WELL AS AT OTHER PORPHYRY CU PROSPECTS IN THE TANANA LOWLANDS (LOCALITIES 118) WHICH MADE THIS AREA ATTRACTIVE FOR PORPHYRY CU EXPLORATION; POTENTIAL FOR LARGE RESERVES OF 0.5% CU AND 0.05% MoS_2 ; ACTIVE EXPLORATION AND CLAIMS.
- 121 STRATABOUND MASSIVE SULFIDE PROSPECT; MODERATE TO HIGH-GRADE PB-ZN-AG IN DRILL INTERCEPTS; POTENTIAL FOR ECONOMIC DEPOSITS.
- 123-
- 127 SEE FIGURE AND TABLE 1.
- 128 PARTIN CREEK PROSPECT; STRATIFORM CU-AU-AG-SB PROSPECT; MINERALIZED ZONE ABOUT 10,000' BY 3000'; GRADES OF UP TO 0.7% CU, 9 OZ/TON AG, 1.8 OZ/TON AU AND 0.7% SB REPORTED.
- 129 COAL CREEK PROSPECT; SIGNIFICANT SN-AG-ZN SKARN PROSPECT; DISCOVERED IN 1976. POTENTIAL FOR PORPHYRY TIN DEPOSITS.
- 130 READY CASH; SIGNIFICANT SN-AG-(CU-PB-ZN) MINERALIZATION; GRADES GREATER THAN 0.1% SN, 15 OZ/TON AG, 2% PB AND 1% AN REPORTED; VEINS EXPOSED OVER 1.5 MILE STRIKE LENGTH.
- 131 GOLDEN ZONE; MAJOR AU-CU-AG DEPOSIT IN BRECCIA PIPE; PRODUCED ABOUT 1,581 OZ AU, 8617 OZ AG, AND 42,000 LBS CU; PROVEN RESERVES OF ABOUT 1 MILLION TONS OF 0.1 OZ/TON AU WITH CU AND AG; INFERRED RESERVES TO 10 MILLION TONS OF 0.0X OZ/TON AU.
- 132 PORPHYRY CU-AG PROSPECT; GRADES OF UP TO 0.5% CU AND 2 OZ/TON AG REPORTED.
- 134 PASS CREEK DEPOSIT; MAJOR STRATIFORM MASSIVE SULFIDE CU-AG DEPOSIT; RESERVES OF ABOUT 5 MILLION TONS OF 2% CU WITH POTENTIAL FOR LARGER RESERVES.

TABLE 3 (CONTINUED)

NO. NAME AND REMARKS

- 135 STRATABOUND (?) CU-AG-AU PROSPECT; STRIKE LENGTH OF SEVERAL MILES; GRADES OF UP TO 14% CU REPORTED.
- 136 CHISTOCHINA DISTRICT; PORPHYRY CU PROSPECT AND PLACER AU DISTRICT; SUBSTANTIAL PLACER AU PRODUCTION; LARGE PLACER AU RESERVES.
- 137 PORPHYRY MO-CU PROSPECT; POTENTIAL FOR LARGE TONNAGES OF LOW-GRADE MO-CU MINERALIZATION.
- 138 PORPHYRY AU-CU PROSPECTS; POTENTIAL FOR LARGE LOW-GRADE DEPOSITS.
- 139-
144 PROSPECTS ARE MAJOR PROSPECTS OF EASTERN NABESNA BELT.
- 139 ORANGE HILL; MAJOR PORPHYRY CU-MO DEPOSIT; INFERRED RESERVES OF 320 MILLION TONS OF 0.35% CU AND 0.03% MoS_2 .
- 140 BOND CREEK; MAJOR PORPHYRY CU-MO DEPOSIT; INFERRED RESERVES OF 500 MILLION TONS OF 0.3-0.5% CU AND 0.03% MoS_2 .
- 141 CU-PB-ZN-AG MINERALIZATION IN BRECCIA PIPE; POTENTIAL FOR SIGNIFICANT HIGH-GRADE MINERALIZATION.
- 142 CARL CREEK; PORPHYRY CU DEPOSIT; INFERRED RESERVES OF 16 MILLION TONS OF 0.2% CU.
- 143 HORSFELD; PORPHYRY CU DEPOSIT; INFERRED RESERVES OF 60 MILLION TONS OF 0.2% CU.
- 144 BAULTOFF CREEK; PORPHYRY CU DEPOSIT; INFERRED RESERVES OF 160 MILLION TONS OF 0.2% CU.
- 145-
168 SEE FIGURE AND TABLE 1.
- 169 EKLUTNA; SIGNIFICANT MASSIVE AND DISSEMINATED CHROMITE (CR) OCCURRENCES IN LAYERED ULTRAMAFIC INTRUSIVE COMPLEX; GRADES OF UP TO 25.8% Cr_2O_3 REPORTED.
- 170 WOLVERINE; MASSIVE AND DISSEMINATED CHROMITE (CR) IN ULTRAMAFIC INTRUSIVE COMPLEX; ROCKS GEOCHEMICALLY ANOMALOUS IN NI.
- 171 WILLOW CREEK DISTRICT; MAJOR LODE AU-(AG-CU-PB-ZN-MO) DISTRICT; PRODUCED ABOUT 404,425 OZ LODE AU AND ABOUT 204,000 OZ PLACER AU; POTENTIAL FOR PORPHYRY CU-MO DEPOSITS.
- 172-
176 ARE MAJOR PROSPECTS OF PRINCE WILLIAM SOUND COPPER BELT.

TABLE 3 (CONTINUED)

NO. NAME AND REMARKS

- 172 LATOUCHE; MAJOR STRATABOUND MASSIVE SULFIDE CU-ZN-AG DEPOSIT; PRODUCED ABOUT 205 MILLION LBS CU FROM ABOUT 6 MILLION TONS ORE (GRADE AVERAGED ABOUT 1.7% CU); INFERRED RESERVES ABOUT 5 MILLION TONS OF 1% CU, 1.5% Pb+Zn, AND 1 OZ/TON AG; DEPOSIT OCCURS NEAR SOUTHERN END OF MAJOR STRATABOUND MASSIVE SULFIDE BELT THAT CONTAINS DEPOSITS AT LOCALITIES 173 THRU 176; NUMEROUS OTHER OCCURRENCES IN AREA HAVE POTENTIAL FOR LARGE TONNAGES OF SIMILAR GRADE ORE; ACTIVE CLAIMS AND EXPLORATION.
- 173 MAJOR STRATABOUND MASSIVE SULFIDE CU-ZN DEPOSIT SIMILAR TO DEPOSIT AT LOCALITY 169; PUBLISHED RESERVES AT LEAST 1.1 MILLION TONS OF 1.25% CU; POTENTIAL FOR LARGER RESERVES; NUMEROUS SIMILAR MASSIVE SULFIDE OCCURRENCES IN AREA HAVE SIMILAR POTENTIAL; ACTIVE CLAIMS AND EXPLORATION.
- 174 STRATABOUND MASSIVE SULFIDE CU-ZN-AU DEPOSIT; PRODUCED ABOUT 16,000 TONS ORE THAT AVERAGED ABOUT 10% CU; ACTIVE CLAIMS AND EXPLORATION.
- 175 MAJOR STRATABOUND MASSIVE SULFIDE CU-(AU-AG-PB-ZN) DEPOSIT; PRODUCED ABOUT 100 MILLION LBS CU; SIMILAR TO DEPOSITS AT LOCALITIES 172 AND 173; ACTIVE CLAIMS AND EXPLORATION.
- 176 STRATABOUND MASSIVE SULFIDE CU-(AG-AU-ZN) PROSPECT; ACTIVE CLAIMS AND EXPLORATION.
- 177 SIGNIFICANT MASSIVE AND DISSEMINATED CR-(CU-NI-PT) OCCURRENCES IN ULTRAMAFIC INTRUSIONS; ACTIVE CLAIMS AND EXPLORATION.
- 178 SIGNIFICANT MASSIVE AND DISSEMINATED MINERALIZATION IN ULTRAMAFIC INTRUSION.
- 179-
- 183 ARE MAIN PROSPECTS OR PROSPECT AREAS OF KENNECOTT BELT.
- 179 PORPHYRY CU-MO PROSPECTS; GRADES OF UP TO 2% CU REPORTED; ACTIVE CLAIMS AND/OR EXPLORATION.
- 180 MAJOR STRATIFORM MASSIVE SULFIDE CU-AG DEPOSITS (KENNECOTT); PRODUCED APPROXIMATELY 1.2 BILLION LBS CU AND 9 MILLION OZ AG.
- 181 SIGNIFICANT STRATIFORM MASSIVE SULFIDE CU-AG DEPOSITS (KENNECOTT-TYPE); CONTAIN DRILLED OUT RESERVES; POTENTIAL FOR LARGE HIGH-GRADE DEPOSITS.
- 182 SIGNIFICANT STRATIFORM MASSIVE SULFIDE CU-AG DEPOSITS (KENNECOTT-TYPE); RECENT PRODUCTION. ACTIVE EXPLORATION. INCLUDES PEAVINE, NELSON, AND BINOCULAR PROSPECTS.
- 183 NIZINA DISTRICT; IMPORTANT GOLD AND COPPER PLACER DISTRICT.

SOUTHEASTERN ALASKA (Figure 4 and Table 4)

The extensive mineral regions in the panhandle represent the general eastern continuations of the Alaska Range belts of the Pacific Rim province. They include major belts of porphyry deposits (especially of molybdenum) and of massive sulfides. Uranium is locally enriched in unusual porphyry deposits, and copper-nickel deposits occur in at least two distinct belts.

TABLE 4

SIGNIFICANT MINERAL DEPOSITS AND
ANOMALIES OF SOUTHEASTERN ALASKA

NO.	NAME AND REMARKS
1	HAINES (GLACIER CREEK) BARITE; MAJOR STRATIFORM BARITE PB-ZN-CU-AG DEPOSIT; 48-80' THICK UNIT OF 60% BARITE WITH AG VALUES, AND A BASAL 2-8' THICK UNIT OF MASSIVE SULFIDE (2% PB, 3% ZN, 1% CU, 2-4 OZ/TON AG AND 0.12 OZ/TON AU).
2	KLUKWAN IRON DEPOSIT; MAJOR FE-TI DEPOSIT IN ULTRAMAFIC INTRUSION; INFERRED RESERVES OF 1 TO 5 BILLION TONS OF 11 TO 20% FE AND 1.6 TO 3.0% TI.
2A	WILLIAM HENRY BAY URANIUM DEPOSIT; URANIUM RESOURCE OF SEVERAL HUNDRED MILLION POUNDS URANIUM IN PORPHYRY-TYPE DEPOSIT.
3	NUNATAK DEPOSIT; LARGE, LOW-GRADE PORPHYRY MO DEPOSIT; RESERVES OF 8.5 M.T. OF 0.125% MoS_2 OR 91.5 M.T. OF 0.080% MoS_2 .
4	PG-ZN-AG SKARN MINERALIZATION.
5	STRATIFORM MASSIVE SULFIDE CU-ZN PROSPECT; ACTIVE CLAIMS.
6	BRADY GLACIER DEPOSIT; MAJOR NI-CU DEPOSIT IN LAYERED ULTRAMAFIC INTRUSION; PROBABLE RESERVES OF 200 TO 300 M.T. OF 0.5% NI (IN SULFIDES) AND 0.3% CU; ONE OF THE TOP TWO NICKEL RESERVES IN THE UNITED STATES.
7	SIGNIFICANT PORPHYRY MO OCCURRENCE.
8	AREA CONTAINS SUBSTANTIAL RESERVES OF LODE AU MINERALIZATION (RESERVES CONTAINING 0.5 TO 1 OZ/TON AU PARTIALLY BLOCKED OUT); PAST PRODUCTION TOTALED 10,000 TO 15,000 OZ AU; AREA ALSO CONTAINS SIGNIFICANT NI-CU AND PB-ZN-AU OCCURRENCES (NI-CU DEPOSIT HAS RESERVES GREATER THAN 560,000 TONS OF 0.34% NI AND 0.35% CU).

TABLE 4 (CONTINUED)

NO.	NAME AND REMARKS
9	TREADWELL; MAJOR LODE AU DEPOSIT; PRODUCED 3,274,600 OZ AU FROM 28.8 M.T. ORE BETWEEN 1885 AND 1922.
10	ALASKA-JUNEAU; MAJOR LODE AU DEPOSIT; PRODUCED 3,832,000 OZ AU FROM 88.5 M.T. ORE BETWEEN 1893 AND 1944.
11	BOHEMIA BASIN, TAKANIS, AND FLAPJACK DEPOSITS; MAJOR NI-CU-CO DEPOSITS IN LAYERED ULTRAFIC INTRUSIONS; RESERVES IN EXCESS OF 20.7 M.T. OF 0.33 TO 0.51% NI, 0.21 TO 0.27% CU AND UP TO 0.04% CO.
12	APEX-EL NIDO; SIGNIFICANT LODE AU-W DEPOSITS; PRODUCED BETWEEN 10,000 AND 50,000 OZ AU.
13	STRATIFORM MASSIVE SULFIDE CU-ZN DEPOSIT.
14	NI-CU DEPOSIT IN LAYERED ULTRAMAFIC INTRUSION; PROBABLE RESERVES OF 8,000 TONS OF 1.54% NI AND 0.7% CU OR INFERRED RESERVES OF SEVERAL M.T. OF 0.2% NI AND 0.1% CU.
15	CHICHAGOF AU DISTRICT; TWO DEPOSITS PRODUCED ABOUT 750,000 OZ AU.
16	AREA CONTAINS SEVERAL STRATABOUND MASSIVE SULFIDE PB-ZN-AG PROSPECTS; ACTIVE CLAIMS AND EXPLORATION.
17	MAJOR STRATIFORM MASSIVE SULFIDE PB-ZN-AG DEPOSIT; MODERATE TONNAGES OF HIGH-GRADE ORE INDICATED; 95' INTERCEPT OF 7.71% ZN, 1.94% PB, 0.42% CU, 5.4 OZ/TON AG AND 0.12 OZ/TON AU IN 1976; AREA ALSO CONTAINS NUMEROUS OTHER UNTESTED STRATIFORM PB-ZN-AG PROSPECTS.
18	AREA CONTAINS NUMEROUS OCCURRENCES OF HIGH-GRADE COPPER DEPOSITS; VALUES UP TO 20% CU AND 2 OZ/TON AG REPORTED; ACTIVE CLAIMS.
19	FE-TI DEPOSIT IN ULTRAFAMIC INTRUSION; AVERAGE GRADE ABOUT 18.9% FE AND 2.6% TI.
20	STRATABOUND MASSIVE SULFIDE PROSPECT; OVER 1140' LONG AND 12' THICK WITH GRADES AVERAGING 1.5% CU, 3.9% ZN, 0.013 OZ/TON AU AND 0.76 OZ/TON AG; RESERVES OF 40,000 TONS/100 FEET DEPTH.
21	STRATABOUND MASSIVE SULFIDE PROSPECT IN MAJOR NORTH-SOUTH TRENDING STRATABOUND MASSIVE SULFIDE BELT; POTENTIAL STRIKE LENGTH OVER 3 MILES LONG AND UP TO 50' THICK WITH 1% CU, 0.5% ZN, AND 0.25 OZ/TON AG.

TABLE 4 (CONTINUED)

NO.	NAME AND REMARKS
22.	Stratabound massive sulfide deposit; grades of up to 1% Cu, 0.3% Pb, 3.5% Zn and 2 oz/ton Ag reported.
23.	Major stratabound massive sulfide Cu-Zn prospects; stream sediment anomalies up to 2% Zn; active claims and exploration; southward continuation of major stratabound massive sulfide belt containing deposit at locality 17.
24.	Area contains numerous stream sediment anomalies which are indicative of stratabound massive sulfide deposits (up to 300 ppm Cu, 700 ppm Zn, 3000 ppm Ba, 50 ppm V); southward continuation of stratabound massive sulfide district containing deposits at localities 21 thru 23.
25.	Significant porphyry Cu-Mo prospect; grades of 0.25% Cu and 0.07% MoS ₂ reported.
26.	Significant Cr mineralization in ultramafic intrusion; reserves of 570 tons of greater than 40% chrome or 29,000 tons of 18-35% chrome; numerous other Cr occurrences are exposed to the northwest.
27.	Major stratabound massive sulfide Cu-Pb-Zn-Ag-barite prospects; grades of up to 20% Pb + Zn and 23 oz/ton Ag reported; active claims and exploration.
28.	Stratiform massive sulfide Cu-Pb-Zn-Ag-barite prospect; area contains numerous other stratabound sulfide-barite occurrences.
29.	Stratiform barite deposit with current production; reserves of 60,750 tons of 93% barite; deposit contains Zn, Pb and Cu sulfides; potential for stratabound massive sulfides in area.
30.	Area contains several stratiform massive sulfide prospects; grades of up to 8% Pb, 29 oz/ton Ag and 0.5 oz/ton Au reported; active claims; area also contains porphyry type Cu-Mo mineralization.

TABLE 4 (CONTINUED)

NO. NAME AND REMARKS

31. Ni-Cu deposit in layered ultramafic intrusion; inferred reserves of 430,000 tons of 0.3% Ni and 0.3% Cu.
 32. Porphyry Cu-Mo prospect.
 33. Significant porphyry Mo prospect; grades of 0.06% MoS_2 reported.
 34. Porphyry Mo-W and massive sulfide skarn Pb-Zn-Au-Ag and W prospects; grades of up to 10% Zn, 6% Pb, 5 oz/ton Ag and 1 oz/ton Au reported for the massive sulfide deposits; potential for very large tonnages of commercial grade porphyry Mo-W mineralization.
-
35. Porphyry Mo prospect.
 36. Area contains numerous stream sediment anomalies which are indicative of large stratabound massive sulfide deposits (up to 5000 ppm Zn, 250 ppm Pb, 300 ppm Cu and 5 ppm Ag); area contains over 40 individual prospects, some of which have produced Au in the past.
 37. KASAAN DISTRICT.
Major massive sulfide Cu-Fe-Au and Cu-Pd-Pt district; produced approximately 18 million lbs. Cu from deposits which averaged about 2% Cu; reserves of 4 million tons of 50% Fe or 1.5 million tons of less than 2% Cu.
 38. Significant Fe-Ti mineralization in ultramafic intrusion.
 39. Massive sulfide deposit; potential for large tonnages of up to 10% Cu, 2% Zn and 1.5 oz/ton Ag.
 40. Porphyry Mo prospect.
 41. Stratiform Cu prospect.
 42. Cu-Fe-(Mo) skarn deposits; produced about 10 million lbs. Cu from 125,000 tons ore; estimated reserves of 420,000 tons grading 45.2% Fe, 0.73% Cu, 0.01 oz/ton Au and 0.08 oz/ton Ag.

TABLE 4 (CONTINUED)

NO.	NAME AND REMARKS
43.	Stratiform massive sulfide Cu-Zn prospects; grades of up to 12.7% Cu, 2.7% Zn, 2.5 oz/ton Ag and 0.2 oz/ton Au reported; potential strike length greater than 1 mile.
44.	Stratiform massive sulfide Cu-(Pb-Zn-Ag) prospects; produced over 1.4 million lbs. Cu, 1100 oz Au and 15,000 oz Ag; active claims and exploration.
-45.	Stratiform Cu, Pb, Zn and barite mineralization; potential for stratiform massive sulfide deposit.
46.	Stratiform massive sulfide Cu-Pb-Zn-Ag-barite prospects.

NORTHERN ALASKA (Figure 5 and Table 5)

Except for the Seward Peninsula, northern Alaska has generally been considered less well mineralized than the Alaska Range and southeastern Alaska. It is now known, however, that it is almost continuously mineralized along the north and south flanks of the Brooks Range across northern Alaska.

The major belts of the Arctic province and the Ambler copper belt containing the great Arctic, Picnic Creek and related deposits of copper and zinc, and the northern Brooks Range belts containing lead, zinc, barite, fluorite; porphyry-type deposits of gold, tin, and tungsten, are widely distributed.

TABLE 5

SIGNIFICANT MINERAL DEPOSITS AND ANOMALIES IN
NORTHERN ALASKA

NO. NAME AND REMARKS
(FIG. 5)

1-4 ARE MAJOR PROSPECTS OF THE RED DOG AREA.

1. Major stratabound massive sulfide deposit in black shales and cherts; discovered in 1977; large tonnages of high grade Pb-Zn-Ag-Cd ore indicated; ANNOUNCED CRIL intercept of 54' of 8.5% Pb, 25.5% Zn, 0.25% Cd, and 5.32 oz./ton Ag.
2. Major stratabound massive sulfide prospect in black shales and cherts; similar to deposit at locality 1; active exploration (drilling) in 1977.
3. Major stratabound massive sulfide (Zn-Pb-Ag-Cd-barite) deposit in black shales and cherts; eastward extension of mineralized belt containing deposit/prospect at localities 1 and 2; inferred reserves in excess of 15 million tons of 15 to 20% Pb+Zn and 3 oz./ton Ag.
4. Stratabound massive sulfide occurrence similar to that at locality 3; grades of up to 30% Pb+Zn reported.
5. Significant chromite occurrences and Ni geochem anomalies in layered ultramafic intrusive complex.
6. Chromite occurrences in ultramafic intrusive complex; potential exists for similar occurrences in belt between localities 5 and 6.
7. DRENCHWATER CREEK:
Major stratabound massive sulfide (Pb-Zn-Ag) occurrence associated with black shales, cherts and felsic volcanics; 60' x 150' exposure averages 3.0% Pb, 17.4% Zn, and 3.3 oz./ton Ag; numerous sulfide occurrences and strong geochem anomalies between localities 1 thru 4 and locality 7 indicates mineralized belt is continuous.

TABLE 5 (CONTINUED)

NO. NAME AND REMARKS

8. Coal-bearing Cretaceous rocks are known or inferred to underlie about 58,000 square miles of northern central Alaska; total resources in northern Alaska are estimated to be 100,905.3 million short tons of subbituminous coal and lignite, and 19,292.2 million short tons of bituminous coal.
 9. Stratabound massive sulfide (Pb-Zn) prospects; grades of up to 50% Zn and 6% Pb reported; active claims in 1977.
-
10. Stratiform massive sulfide Cu-Pb-Zn-Ag potential; grades of up to 5% Zn, 1% Cu, 1% Pb and 0.5 oz/ton Ag reported; active claims.
 11. Significant fluorite mineralization; grades of up to 78% fluorite reported.
 12. Significant Pb/Zn/Cu/Cd geochemical anomalies associated with black shales and cherts, and pyritized shales to the west indicates eastward continuation from locality 7 of major stratabound Pb-Zn-(Cu) belt along northern Brooks range.
 13. Significant stratiform fluorite occurrence; traced for approximately 2 miles; grades of up to 25-30% fluorite (CaF_2) reported.
 14. Stratiform Cu mineralization in chert; stratabound massive sulfide potential similar to that at localities 1 thru 4 and 7.
 15. Stratabound massive sulfide (Cu) potential; chalcopyrite in sedimentary and volcanic rocks.
 16. Phosphate deposits occur in two stratigraphic units (Lisburne and Shublik) which extend across the entire northern Brooks Range; grades of up to 35.8% P_2O_5 report; huge inferred resources.
 17. MT. MICHELSON AREA; MO-SN-W-PB-ZN-U POTENTIAL IN INTRUSIVE COMPLEX AND ASSOCIATED SKARNS.
 18. Major porphyry Mo-(W)-(Sn) occurrence in intrusive breccia pipe; strongly anomalous Mo-W geochem anomalies; potential exist for similar occurrences between localities 17 and 18.

TABLE 5 (CONTINUED)

NO. NAME AND REMARKS

- 19 STRATIFORM MASSIVE SULFIDE POTENTIAL; WIDESPREAD GALENA (PB) MINERALIZATION; GRADES OF UP TO 30% PB AND 1% CU REPORTED; STRONGLY ANOMALOUS PB AND ZN GEOCHEM VALUES IN STREAM SEDIMENTS.
- 20 AND
- 23-24 ARE MAIN KNOWN PROSPECTS IN INFERRED WEST PROJECTION OF THE AMBLER BELT.
- 20 COPPER REPLACEMENT (RUBY CREEK-TYPE, LOCALITY 26) AND STRATIFORM BARITE ZN-(CU) OCCURRENCES IN CARBONATES; POSSIBLE RESOURCES OF 1 TO 10 MILLION TONS BARITE AT ONE OCCURRENCE.
- 21 HIGH-GRADE GOLD ACCUMULATIONS IN PLACER GRAVELS.
- 22 PLACER AU DEPOSIT; WORKED INTERMITTENTLY FROM 1909 TO PRESENT; TOTAL PRODUCTION THROUGH 1931 ESTIMATED AT ABOUT 31,320 OZ; LARGE RESERVES REMAIN UNMINED.
- 23 STRATABOUND MASSIVE SULFIDE POTENTIAL; MASSIVE CU AND PB-ZN-AG MINERALIZATION FOUND.
- 24 NUMEROUS ZN AND CU GEOCHEMICAL ANOMALIES ASSOCIATED WITH ROCKS SIMILAR TO THOSE AT MAJOR CU-PB-ZN-AG DEPOSITS IN THE AMBLER MINERAL BELT.
- 25-28 CONSTITUTE MAJOR PARTLY EXPLORED DEPOSITS OF AMBLER MINERAL BELT.
- 25 SMUCKER; MASSIVE SULFIDE DEPOSIT; SIGNIFICANT TONNAGES OF ZN-AG ORE; 3000' STRIKE LENGTH; ACTIVE EXPLORATION.
- 26 BORNITE; MAJOR STRATIFORM (REPLACEMENT) COPPER DEPOSIT IN CARBONATES; 1 MILLION TONS OF COPPER IN 25,000 TO 150,000 TON ORE BODIES GRADING 4-12% CU.
- 27 ARCTIC; MAJOR STRATABOUND MASSIVE SULFIDE DEPOSIT IN A SEQUENCE OF METARHYOLITES, METATUFFS, AND GRAPHITIC SCHISTS; CURRENT DRILLING INDICATES RESERVES OF 30 TO 35 MILLION TONS OF 4.0% CU, 5.5% ZN, 1.0% PB, 1.5 OZ/TON AG.
- 28 PICNIC CREEK; MAJOR STRATABOUND MASSIVE SULFIDE DEPOSIT IN A SEQUENCE OF METARHYOLITES AND SCHISTS; DRILLING THRU 1976 INDICATED A GROSS METAL VALUE OF APPROXIMATELY \$1,000,000,000; NUMEROUS OTHER STRATABOUND SULFIDE OCCURRENCES BETWEEN DEPOSIT AT LOCALITY 25 AND DEPOSIT AT LOCALITY 28 MAKE UP A CONTINUOUS 60-MILE LONG MAJOR VOLCANOGENIC STRATABOUND MASSIVE SULFIDE BELT, THE AMBLER MINERAL BELT; STRONG GEOCHEM ANOMALIES IN A SIMILAR ENVIRONMENT AT LOCALITY 24 AND SIMILAR OCCURRENCES AT LOCALITIES 23, 29, AND 31 INDICATE THIS BELT EXTENDS TO THE WEST AND EAST.

TABLE 5 (CONTINUED)

NO.	NAME AND REMARKS
29.	Potential for major stratabound massive sulfide deposit comparable in size to deposits and localities 25, 27 and 28; gossan zones found with strongly anomalous Cu-Pb-Zn-Ag values; unexplored due to land status.
30.	Skarn deposit; 100' by 300' zone with approximately 1% WO ₃ -Sn.
31.	Stratiform massive sulfides Cu-Pb-Zn-Ag prospects; gossans of massive sulfides common; active exploration in 1977. ROCK SERIES IDENTICAL TO AMBLER MINERAL BELT.
32.	ABO, ANNE, AND RELATED CLAIMS; HIGH-GRADE REPLACEMENT (?) AND STRATIFORM PB-ZN-AG PROSPECTS IN CARBONATES; GRADES OF UP TO 20% PB + ZN REPORTED; ACTIVE CLAIMS.
33.	Stratiform Cu-Pb-Zn mineralization; grades of up to 3% Cu reported.
34.	Cu sulfides in black phyllites and shales; stratiform massive sulfide potential; active claims.
35.	Placer Au district; substantial production; possible significant Cu-Pb-(Zn) veins with copper mineralization up to 2% Cu also occur in area.
36.	Stratiform (?) Cu mineralization in calcareous schist along 5 mile long belt; grades of up to 1% Cu reported; active claims.
37.	WISEMAN PLACER AU DISTRICT; SUBSTAN. PRODUCTION (255,000 OZ) FROM 1900 TO PRESENT; SIGNIFICANT DEEP PLACER RESERVES REMAIN UNMINED. LODE ANTIMONY.
38.	Very strongly anomalous stream sediment (up to 3500 ppm Zn) and rock (up to 3 oz./ton Ag with Pb-Zn) geochemistry; stratiform massive sulfide potential.
39.	Porphyry copper prospects with associated skarn deposits; potential for small deposits grading over several percent Cu.
40.	High grade Cu-Zn occurrences with values up to 10% Cu and 10% Zn.

TABLE 5 (CONTINUED)

NO. NAME AND REMARKS

- 41 HIGH-GRADE CU AND CU-ZN-(PB)-(AG) SKARN (?) PROSPECTS WITH POTENTIAL FOR LARGE TONNAGES; GRADES OF UP TO 10% CU AND 5% ZN REPORTED.
- 42 PORPHYRY MO-CU PROSPECT; GRADES OF UP TO 0.1% MO REPORTED; ACTIVE CLAIMS.
- 43 CHANDALAR AU DISTRICT; SUBSTANTIAL PRODUCTION (GREATER THAN 30,000 OZ AU) FROM BOTH PLACER AND VEIN DEPOSITS; ACTIVE EXPLORATION, DEVELOPMENT, AND MINOR PRODUCTION SINCE EARLY 1960S.
- 44 MASSIVE SULFIDE CU-ZN PROSPECTS; STRONG CU-ZN SOIL AND ROCK GEOCHEMICAL ANOMALIES; ACTIVE CLAIMS AND EXPLORATION IN 1976-77.
- 45 STRATIFORM BARITE - (CU-PB-ZN-AG) POTENTIAL.
- 46 STRONGLY ANOMALOUS URANIUM VALUES (UP TO 60 PPM) ASSOCIATED WITH GRANITIC ROCKS. ALSO PB-SN-W.
- 47-73 ARE MAJOR PROSPECTS OF SEWARD PENINSULA AND HOGATZA TREND.
- 47 LOST RIVER; MAJOR TIN, FLUORITE, TUNGSTEN AND BERYLLIUM DEPOSITS; POTENTIAL RESERVES OVER 200 MILLION TONS.
- 48 EAR MOUNTAIN; SIGNIFICANT PLACER SN DISTRICT AND SN-CU-(AU-AG-PB-ZN) SKARN DEPOSITS; MINERALIZED ZONE 1000' LONG AND 65' WIDE CONTAINS 0.2% SN AND 0.3% CU WITH VALUES UP TO 2% SN AND 3% CU; THE AREA IS ALSO STRONGLY ANOMALOUS IN URANIUM.
- 49 SERPENTINE HOT SPRINGS AREA; ACTIVE URANIUM CLAIMS; URANIUM SOIL GEOCHEMICAL ANOMALIES UP TO 0.05% U_3O_8 .
- 50 STRATIFORM MASSIVE SULFIDE PB-ZN-AG PROSPECTS; 30 TO 150' THICK ZONE OF OXIDIZED PB-ZN-AG ORE WITH A POTENTIAL STRIKE LENGTH OF ONE MILE; OXIDIZED MATERIAL ASSAYS UP TO 12% PB + ZN AND 2 OZ/TON AG; ACTIVE EXPLORATION IN 1977.
- 51 STRATIFORM MASSIVE SULFIDE PB-ZN-AG-AU PROSPECTS; STRONGLY ANOMALOUS SOILS AND GOSSANS; POTENTIAL FOR A VERY LARGE MINERALIZED HORIZON.
- 52 INDEPENDENCE; STRATIFORM MASSIVE SULFIDE PB-ZN-AG PROSPECT; HIGH-GRADE ORE SHIPPED IN 1921 CONTAINED 30% PB, 5% ZN, AND 33 OZ/TON AG; ACTIVE EXPLORATION IN 1977.
- 53 CANDLE; PLACER AU DEPOSITS WITH SIGNIFICANT RESERVES BLOCKED OUT; URANIUM IN PLACER CONCENTRATE ASSAYS UP TO 3.8% URANIUM.

TABLE 5 (CONTINUED)

NO.	NAME AND REMARKS
	SINUK AREA:
54.	Stratiform massive sulfide Pb-Zn-Ag-barite-fluorite prospects; mineralization of large extent and moderate grade; active claims and exploration in 1976-77.
55.	Tungsten-antimony-gold lodes with up to 3% WO_3 , and stratiform (?) massive sulfide Pb-Zn-Ag mineralization with up to 8% Pb + Zn; active claims and exploration in 1976-77.
56.	None placer Au district; substantial production (1,167,200 oz Au) from some of the world's richest placer deposits.
57.	Stratiform massive sulfide Pb-Ag-(Zn) prospect in carbonates; grades of up to 23% Pb and 20 oz/ton Ag reported.
58.	Substantial placer Au reserves; active exploration.
	BIG HURRAH:
59.	Major lode Au deposit; contains significant W mineralization; produced over 10,000 oz Au.
60.	Placer Au district; produced 90,240 oz Au from placers; vein deposits in area contain up to 8.5 oz/ton Au and 2.4% Hg.
61.	Uranium prospect in intrusive rocks; highly anomalous Th (thorium) geochem values (1000 ppm); active claims.
62.	Stratiform (?) massive sulfide Pb-Zn-Ag prospects in carbonates; produced Pb-Ag ore between 1881 and 1890 that averaged about 10% Pb and 4 oz/ton Ag; grades of oxidized zinc ore up to 34% Zn reported.
	WINDY CREEK PLUTON:
63.	Significant Mo-F mineralization; values up to 0.15% Mo reported; active claims.
64.	The Darby pluton is known to be highly anomalous in U and Th; active exploration for uranium deposits.

TABLE 5 (CONTINUED)

NO. NAME AND REMARKS

65. Significant Pb-Zn-Ag mineralization; values up to 15% Pb + Zn and 10 oz/ton Ag; altered zone 18 miles long and 2 to 5 miles wide; active exploration.
- GRANITE MOUNTAIN;
66. Significant uranium geochemical anomalies occur in and around intrusive complex; active exploration.
67. Significant Mo-F mineralization disseminated in intrusive rock; values greater than 0.2% Mo reported; active exploration.
68. Significant Pb-Zn-Ag mineralization; values greater than 3% Pb + Zn and 1 oz/ton Ag reported; active exploration.
-
69. Uranium prospect; active claims.
- SELAWIK HILLS;
70. Numerous U_3O_8 occurrences associated with alkaline intrusive complexes; active claims and exploration.
71. Uranium occurrence; values up to 500 ppm uranium reported.
72. U_3O_8 occurrences associated with alkaline intrusive complex; active exploration.
- HOGATZA;
73. Placer Au deposit; substantial production from 1957 to 1975.
74. Area of highly anomalous uranium in airborne and ground geophysical and stream sediment geochemical surveys; recent staking activity.
75. Recent discovery (on d-2 land) of significant tungsten mineralization along intrusive contact zone; similar to major recent discoveries in the Yukon, Canada.
- 76-93 ARE ON FIGURE AND TABLE 3.



EXPLANATION

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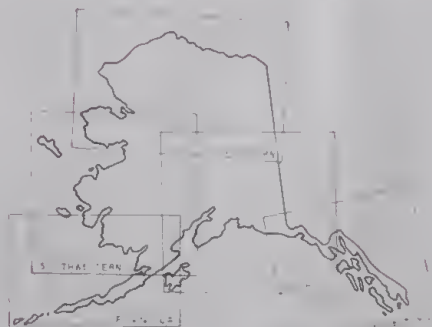
— Major mineral trend or province

— Existing Federal withdrawal

— Carter Administration's recommended Federal withdrawal

Data Source: Federal and State publications plus private industry files.

INDEX MAP



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NORTHERN ALASKA

1:500,000





ANCHORAGE

GULF OF ALASKA

CAN. U.S. BOUNDARY

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SOUTHERN ALASKA

Data Source: Federal and State publications plus private industry files



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SOUTHEASTERN ALASKA





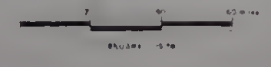
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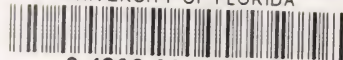
INDEX MAP

SOUTHWESTERN ALASKA





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